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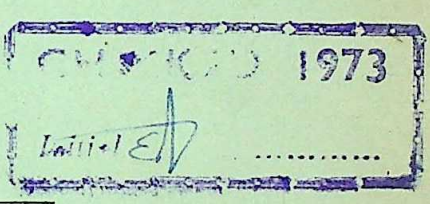

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Journal of the Royal Asiatic Society of Bengal. Science.
Volume XVII, No. 1, 1951.

A NOTE ON NAGA ANTHROPOMETRY

By S. Sen Gupta

(*Received November 16, 1950*)

(In 1933, Dr. J. H. Hutton, then Deputy Commissioner of the Naga Hills, was kind enough to make available to the writer his collection of anthropometric measurements which he took in course of his tours in the Naga Hills. The writer prepared two copies of the measurements, one of which was made over to the Statistical Laboratory of the Presidency College, Calcutta. The writer's copy is lost and the other copy cannot also be traced. The writer calculated the Means and the Standard Deviations, but all that is now available are the means as also a broad two-way classification on the basis of the Cephalic and Nasal Indices. The available data have been statistically analysed and the result is here offered for publication.)

I

The data are as follows:

Table I

Mean values

Tribe	No.	C.L.	C.B.	C.I.	N.L.	N.B.	N.I.
1. Ao Mongsen	23	185·8	146·3	78·6	47·0	37·4	80·7
2. Ao Chongli	71	186·7	147·3	79·2	46·5	36·7	81·1
3. Chang	16	185·6	143·6	77·5	46·0	36·3	79·1
4. Sema	41	185·2	147·9	79·9	48·0	38·3	79·5
5. Angami	28	189·7	144·1	76·0	46·0	36·9	80·6
6. Konyak	22	189·7	146·7	77·6	43·9	38·9	89·4
7. Lhota	37	185·2	146·9	79·3	42·1	37·5	90·0
	238	186·7	146·6	78·7	45·8	37·7	82·8

Table II

Two-way Grouping

	Ao Mongsen				*Ao Chongli*				*Sema*			
C.I. →	<77	77–82	>82	T	<77	77–82	>82	T	<77	77–82	>82	T
N.I. <71	5	2	—	7	8	10	—	18	4	5	3	12
71–85	5	5	—	10	22	21	—	43	11	9	4	24
>85	4	2	—	6	5	5	—	10	1	4	—	5
T	14	9	—	23	35	36	—	71	16	18	7	41

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	Angami				*Konyak*				*Lhota*			
C.I. →	<77	77–82	>82	T	<77	77–82	>82	T	<77	77–82	>82	T
N.I. <71	5	2	—	7	2	1	—	3	—	—	—	
71–85	16	1	—	17	4	4	—	8	11	5	2	18
>85	2	2	—	4	9	2	—	11	9	10	—	19
T	23	5	—	28	15	7	—	22	20	15	2	37

In the second table the distribution of the Changs is unfortunately missing. The measurements have to be accepted as they are, for it cannot be ascertained whether the samples are reasonably random or roughly proportional to the population of the tribes. We do not know, in fact, even the populations of the several tribes at the time the measurements were taken. The aggregate means are accordingly artificially weighted and are not representative of the Naga tribe as a whole.

Even a cursory examination of the second table will show that the pattern is not the same for all the tribes. There is thus a distinct broad-headed element in the Semas, and a broad-nosed element among the Konyaks and Lhotas. Other peculiarities will also be readily observed. But the measurements are very few in number and no generalization would, perhaps, be justified. It will, however, be seen that more elaborate analysis confirms that the Naga race, as represented by the metric characters of the tribes, may not be homogenous at all.

Averages cannot be compared without a knowledge of the variability. As the original data are not available, the variances cannot be directly calculated. The variances can, however, be indirectly estimated by assuming the magnitude of the 'range'. If we assume the range of C.I.'s to be 70–90 and that of N.I.'s to be 60–100, the standard deviations for a sample of 238 are found, for a normal distribution, to be 3·6 and 7·2 respectively which compare very favourably with corresponding values found for other tribal people. It is not necessary actually to compute variances for individual tribes, especially in view of the accepted concept of a 'general human variability'. Thus Guha, in his Ethnographical Report, Census of India, 1931, employed standard deviations calculated from the Nagar Brahman series of measurements for computing the coefficients of racial likeness.

The following values of the standard deviations may be adopted for the analysis of the means. Larger values will evidently make the residual variances higher. As will be seen presently, even a much larger value for the standard deviation of the nasal index will not affect the result.

C.B. 5·0	C.L. 5·5	C.I. 3·5
N.B. 3·0	N.L. 3·5	N.I. 7·5

(As regards the Cephalic Index, the variance was slightly lower than 3·5—as far as I recollect, it was 3·0 or so).

II

Analysis of Variance

The 'between-mean' variances for six characters (only four are really independent) and seven tribes, the total variances and the residual variances, are as follows:—

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TABLE III

	1 Total sum of Sqq.	2 Between means sum of Sqq.	3 Residual sum of Sqq. (1)−(2)	4 Residual variance (3)/231	5 Between means variance (2)/6	6 Ratio (5)/(4)
C.B.	5925·00	271·62	5654·38	24·48	45·27	1·8
C.L.	7269·25	598·04	6671·21	28·88	99·67	3·4
C.I.	2666·25	344·12	2322·12	10·06	57·35	5·7
N.L.	2133·00	97·79	2035·21	8·81	16·30	1·9
N.B.	2666·25	854·06	1812·19	7·84	142·04	18·2
N.I.	13581·25	3906·63*	9674·62	41·88	651·11*	15·5

*Konyaks and Lhotas alone contribute no less than 2852·40. But even excluding this, the ratio becomes about 4·00.

If for N.I., we take the standard deviation to be as high as 12 in place of 7·5 the ratio becomes 651·11/125·9 = 5·2, which also is highly significant.

Applying the F-test, we find that the maximum value is $<2{\cdot}80$ at 1% level. Accordingly except for C.B. aud N.L. the differences between the means are highly significant. The Analysis of the Variances rules out any hypothesis of racial homogeneity of the tribes on metric grounds.

III

THE t-TEST

The averages may be compared by two's. This will enable us to ascertain the basis of the heterogeneity indicated by the analysis of variances. The t-test is found to confirm that the Konyaks and Lhotas form a distinctly separate group as compared with the other tribes.

t is defined as $\frac{m_i - m_j}{\sigma}\sqrt{\frac{n_i n_j}{n_i + n_j}}$. Two averages (or means) may be considered significantly different when the corresponding t exceeds 3. Usually the criterion is $t > 2$ at 5% level. This is perhaps too rigid a test for anthropometrical analysis.

Calculation of t shows that the significant differences are as follows. (The numerals here denote the tribes. Thus (25) means the difference between the averages of Ao Chonglis and Angamis. 1. Ao Mongsen; 2. Ao Chongli; 3. Chang; 4. Sema; 5. Angami; 6. Konyak; 7. Lhota).

TABLE IV

	Significant at 2 t level, i.e., $3 > t > 2$	Significant at 3 t level, i.e., $t > 3$
C.L. ..	(25) (26)	....
C.B. ..	(23) (34) (37)	....
C.I. ..	(15) (34)	(25) (35) (57)
N.L. ..	(45) (56)	(16) (17) (26) (27) (46) (47) (57)
N.B. ..	(34) (36) (56)	....
N.I. ..	....	(16) (17) (26) (27) (36) (37) (46) (47) (56) (57)

Thus, tribes (6) and (7), Konyaks and Lhotas are clearly differentiated from the rest, but *only* in respect of nasal measurements. It will be recalled

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that the analysis of variances showed heterogeneity in respect of C.L. and C.I. also. Such divergence in application of the two tests is not unlikely.

Finally, we shall compute the Coefficients of Racial Likeness and see how we fare.

IV

The Coefficient of Racial Likeness

Perason's Coefficient of Racial Likeness is defined as

$$C^2 = \frac{1}{M} \cdot S \frac{n_i n_j}{n_i + n_j} \left(\frac{\overline{m}_i - \overline{m}_j}{\sigma} \right)^2 - 1 + \frac{1}{M},$$

where M is the number of characters measured. Since the coefficient is affected by the size of the sample, the 'Reduced' C.R.L. is used for comparison of samples of unequal size. This 'Reduced' coefficient modifies the crude C.R.L. to a value in which the size of both the samples is 100. Thus where the numbers are the same for all the characters, the 'Reduced' C.R.L. C_1^2 is given by

$$C_1^2 = \frac{50}{M} S \left(\frac{m_i - m_j}{\sigma} \right)^2 - 1 + \frac{1}{M}.$$

The approximate values of C^2 and C_1^2 are given below:

Table V

'Crude' Coefficients of Racial Likeness

(12) ·51					
(13) ·22	(23) 1·52				
(14) ·13	(24) ·77	(34) 3·08			
(15) 1·09	(25) 3·59	(35) 0·29	(45) 4·80		
(16) 4·12	(26) 3·82	(36) 5·38	(46) 7·72	(56) 4·14	
(17) 7·55	(27) 7·93	(37) 7·16	(47) 14·73	(57) 9·66	(67) 0·96

Table VI

'Reduced' Coefficients of Racial Likeness

(12) 0·1					
(13) 4·8	(23) 8·2				
(14) 2·5	(24) 2·2	(34) 16·2			
(15) 6·8	(25) 10·2	(35) 4·7	(45) 16·2		
(16) 21·2	(26) 13·0	(36) 32·7	(46) 29·0	(56) 19·3	
(17) 28·7	(27) 17·2	(37) 35·0	(47) 39·3	(57) 32·2	(67) 5·7

For our purpose it is enough to calculate the C.R.L.'s to one place of decimal or even to the nearest integer. It is conventional to hold the races completely divergent if the 'Reduced' C.R.L. >13. Thus the following are to be considered divergent:—(16) (17) (26) (27) (36) (37) (46) (47) (56) (57) and (34) (45). Hence, it appears once again that the Konyaks and Lhotas are significantly differentiated from the other tribes.

There are only six characters here of which only four are independent. But since the coefficients are so large, this does not greatly matter.

V

Thus all the three tests indicate that the Konyaks and Lhotas are differentiated from the rest as regards metric characters. The patterns are somewhat as follows.

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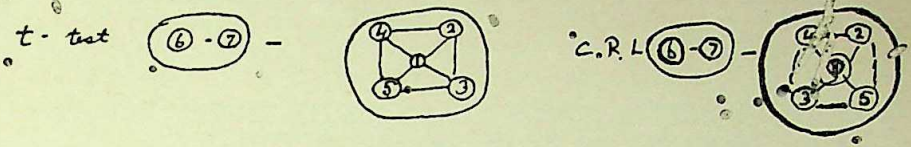

The tests are consistent and raises the question whether on metrical grounds even on the basis of one or two characters, the Konyaks and the Lhotas should be considered to belong to the same 'race'* or tribe as Angamis Aos and Semas. If so then the various tests must be considered unsatisfactory—and either a more satisfactory test must be found which would differentiate one 'race' * (or tribe) from other 'races' (or tribes) but would not significantly differentiate a division of the same race* or tribe from other divisions, *or else* it must be held that metric measurements are not adequate to define a race. It would be interesting, for methodological reasons to investigate whether similar heterogeneity is found in other 'races' * or tribes as well.

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* 'Race' is used here loosely for an ethnically homogenous group.

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Journal of the Royal Asiatic Society of Bengal. Science.
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A PSYCHOMETRIC STUDY OF CONCRETE INTELLIGENCE AND MEMORY OF SCHOOL BOYS IN BANARAS

By RANAJIT KUMAR DE,
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(Communicated by Dr. B. S. Guha, F.R.A.S.B.)

(*Received December 23, 1950*)

ABSTRACT

A team of performance and memory tests was applied to 100 school children of the United Provinces, within the age group 7 to 14 years old. The investigation covers the period from the 17th February, 1948, to the 20th April, 1948. The testees were classified into two groups according to caste, higher and lower or depressed, and their scores compared. Mean scores in tests do not show any considerable difference between the two caste-groups.

Attempts have been made to determine the validity of individual tests in respect of the 'capacity' they are intended to measure by statistical methods and psychological interpretation. From findings Block Design ranks highest in respect of validity.

The significance of intercorrelations between tests in terms of different degrees of saturation values of factors of intelligence has been discussed.

Psychic contents, ideational and emotional, of the expression of intelligence, *en bloc*, in test situations have been critically studied and analysed in detail in the light of the responses to the tasks set by the test requirements. The function of memory in intellectual operations as required in the tests has also been described.

Finally an estimate of the nature of concrete intelligence as revealed in the tests has been attempted.

INTRODUCTION

The purpose of this paper is to describe the results of an investigation of concrete intelligence and memory among the school boys of the Government Normal School, Banaras, U.P., as measured by a selected team of performance and memory tests.

This investigation was inspired by consideration of the fact that all widely administered and reliable mental tests were devised and standardized on western standards and their suitability for Indian population has not been tested.

The present study is the outcome of these considerations. While we cannot pretend to do anything like standardization of the tests with small samples, we can get some provisional statistical bases in the form of norms, etc., which are likely to be useful for comparative study on the peoples of this country.

For obvious reasons a set of non-verbal tests which claim to be more culture free than the verbal ones and require minimum use of language and ideational associations were selected.

The tests were applied in Banaras during the months of February to April, 1949, on the Government Normal School boys through the kindness of school authorities to whom I am indebted.

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Selection, Procedure and Scoring of tests

Concrete intelligence was measured by Passalong test (6), Dearborn Formboard test (7), Cube Construction test (4), and Block Design test (4) ; Immediate Memory span for digits and Recognition were determined by Memory test (3) and Recognition test (3) respectively.

Test administration and scoring of Cube Construction and Block Design tests were done according to Drever and Collins (4). Those of Passalong, Dearborn Formboard and Memory tests followed the methods adopted by Alexander (6), Dearborn (7) and Woodworth (3) respectively.

Nature of group tested.

The tests were applied to 100 boys between 7 to 14 years old reading in the Government Normal School, Banaras.

The following table gives the number of subjects in each age-group.

Table I

Age in years	7	8	9	10	11	12	13	14
No. of subjects	9	8	5	21	9	26	13	7

There were only one 6-year old and one 14-year old boy whose scores were omitted for statistical reason.

The testees were reading in from infant class to class V. Majority of them (76) came from peasant families and families of manual workers, skilled and semi-skilled including so-called depressed classes. It may be said that the parents and guardians of the testees belonging to these families are manual workers in general, living in a lower strata of society.

A few of the testees, 24, came from higher castes like Chatriya (or Kshatriya), Kayasth and Brahmin. But professionally and in regard to social status these castes are quite on the same level as those described above.

In the present paper the former castes have been called lower and the latter higher caste groups respectively.

Table II gives the statistical constants of the lower and higher caste-groups and also of the composite group in which the former two groups are combined.

Table II further shows that there is no considerable difference in the average values scored by the lower and higher caste members.

On statistical analyses it was also found that neither difference of means (excepting Cube Construction) nor coefficients of correlation between the two samples representing higher and lower castes are significant. For testing the significance of the differences in the correlation coefficients and for combining the correlation coefficients z-values (Fisher) were used (Table IV).

In the absence of any criterion, the series of average scores derived from the combined score of each individual in the four performance tests,

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Statistical Results

TABLE II

Test Scores

Government Normal School, Banaras.

Caste	No. of subjects	Statistical Constants	
		Mean with s.e. of Mean	Standard deviation with s.e. of S.D.
		Passalong test	
Lower caste	76	18·42 ± 0·80	7·0128 ± 0·57
Higher caste	24	18·33 ± 1·42	6·9649 ± 1·01
Combined	100	18·40 ± 0·70	6·9971 ± 0·49
		Dearborn Formboard test	
Lower caste	76	13·38 ± 0·75	6·516 ± 0·53
Higher caste	24	12·58 ± 1·22	5·9716 ± 0·86
Combined	100	13·19 ± 0·64	6·3953 ± 0·45
		Cube Construction test	
Lower caste	76	7·95 ± 0·39	3·3689 ± 0·27
Higher caste	24	5·54 ± 0·75	3·6986 ± 0·53
Combined	100	7·37 ± 0·36	3·6056 ± 0·25
		Block Design test	
Lower caste	76	12·58 ± 0·95	8·3036 ± 0·67
Higher caste	24	11·25 ± 1·57	7·6987 ± 1·11
Combined	100	12·26 ± 0·82	8·1835 ± 0·58
		Auditory Memory test	
Lower caste	76	5·463 ± 0·07	0·634 ± 0·05
Higher caste	24	5·442 ± 0·13	0·6595 ± 0·10
Combined	100	5·460 ± 0·06	0·6403 ± 0·05
		Visual Memory test	
Lower caste	76	4·855 ± 0·08	0·718 ± 0·06
Higher caste	24	4·896 ± 0·15	0·7162 ± 0·10
Combined	100	4·860 ± 0·08	0·8246 ± 0·06
		Recognition test	
Lower caste	76	0·385 ± 0·01	0·105 ± 0·01
Higher caste	24	0·405 ± 0·02	0·0775 ± 0·01
Combined	100	0·390 ± 0·01	0·0995 ± 0·01

has been taken as the most representative measure of concrete intelligence or ability as manifested in the four performance tests. Level of correlation with the series of average scores by individual tests, therefore, reveals to what extent they measure the same ability individually.

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TABLE III

Correlation between the scores in the individual tests with the average score.

$n = 100$

Correlation between	Correlation coefficients with standard error
Passalong and average	0·7529 ± 0·044
Dearborn and average	0·8908 ± 0·021
Cube and average	0·4933 ± 0·076
Block and average	0·9086 ± 0·017

From Table III, Block Design seems to measure most and Cube Construction least the ability or capacity in question. It follows that Block Design can claim a status of validity higher than that of the other three.

TABLE IV

Inter-correlation between tests

Correlation between	Correlation coefficients with standard errors		
	(*a*) Lower caste (76)	(*b*) Higher caste (24)	(*c*) Lower and Higher castes combined (100)
Passalong and Dearborn ..	0·52 ± 0·08	0·50 ± 0·15	0·51 ± 0·07
Dearborn and Cube	0·33 ± 0·10	0·58 ± 0·13	0·39 ± 0·09
Cube and Block	0·56 ± 0·08	0·70 ± 0·10	0·57 ± 0·07
Passalong and Cube	0·21 ± 0·11	0·07 ± 0·20	0·17 ± 0·10
Passalong and Block	0·54 ± 0·08	0·47 ± 0·16	0·52 ± 0·07
Dearborn and Block	0·71 ± 0·06	0·78 ± 0·08	0·75 ± 0·04
Passalong and Auditory Memory ..	−0·04 ± 0·11	0·02 ± 0·20	0·03 ± 0·10
Passalong and Visual Memory ..	0·19 ± 0·11	−0·21 ± 0·20	0·10 ± 0·10
Passalong and Recognition ..	0·23 ± 0·11	0·58 ± 0·13	0·31 ± 0·09
Dearborn and Auditory	0·31 ± 0·10	0·16 ± 0·2[illegible]	0·27 ± 0·09
Dearborn and Visual	0·37 ± 0·10	0·05 ± 0·20	[illegible]
Dearborn and Recognition ..	0·29 ± 0·11	0·36 ± 0·18	0·30 ± 0·09
Cube and Auditory	−0·06 ± 0·11	0·39 ± 0·17	0·13 ± 0·10
Cube and Visual	0·01 ± 0·11	0·44 ± 0·17	0·10 ± 0·10
Cube and Recognition ..	0·20 ± 0·11	0·25 ± 0·19	0·20 ± 0·10
Block and Auditory	0·19 ± 0·11	0·33 ± 0·18	0·21 ± 0·10
Block and Visual	0·38 ± 0·10	0·30 ± 0·19	0·36 ± 0·09
Block and Recognition ..	0·28 ± 0·11	0·51 ± 0·15	0·33 ± 0·09
Auditory and Visual	0·49 ± 0·09	0·48 ± 0·16	0·48 ± 0·08
Visual and Recognition ..	0·35 ± 0·10	−0·05 ± 0·20	0·25 ± 0·09
Recognition and Auditory ..	0·18 ± 0·11	0·20 ± 0·20	0·78 ± 0·04

In Alexander's researches (6) the correlation between Passalong and Kohs' Block Design is of the order of ·6; between Kohs' Block Design and Cube Construction of the order of ·7; and between Passalong and Cube Construction of the order of ·55.

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The corresponding correlation figures in our investigation excepting the correlation between Passalong and Cube Construction are in fair agreement with Alexander's results.

In his Instruction Book (15) Alexander quotes the following results from evidence from his researches (6).

Correlation between the performance scale (consisting of Passalong, Kohs' Block Designs and Cube Construction) and the general factor (g) is of the order of ·8 and with the practical factor of the order of ·6.

'On a group of 181 boys Drew records... a correlation between the Passalong and Kohs' Block Designs of ·504, between Kohs' Block Designs and the Cube Construction of ·466, between the Passalong and the Cube Construction of ·38. The correlations between the individual tests of the scale and the scale as a whole in this same set of results are ·78 between the Passalong and the total scale result, ·86 between Kohs' Block Designs and the total result, and ·75 between the Cube Construction and the total result.' (15)

On the whole our results (Table III and IV) correspond more closely with those of Drew.

The general conclusion that Alexander drew from the researches (15) with the use of his scale is that the scale measures practical ability which is the resultant of 'g' and 'F' (general mental energy and practical aptitude). Moreover 'Determination or long-term persistence—which for the moment let us call 'X'—is an important factor in the achievement of success at school. (15)

The extent of agreement between the results of our investigation with those of Alexander and Drew seems to suggest that our battery of performance tests is a valid instrument in the same sense, i.e., it does, in fact, measure practical ability.

Interpretation and Synthesis of Results

The correlation between Block Design and the average score (the average score was derived from the combined score of each individual in the four performance tests) is as high as 0·9086.

This apparently signifies that Block Design measures the greatest magnitude of the common ability for which the series of performance tests selected are designed to measure.

Also from a review of its correlation with the other three performance tests it may be assumed that Block Design reveals a type of ability which has much in common with the abilities measured by the rest of the performance tests. Its correlation with Passalong is 0·52, with Dearborn 0·75; and with Cube Construction 0·57; all of which are significant (Table IV).

On the other hand Passalong although it correlates significantly with Dearborn Formboard and Block Design has a very low and insignificant correlation with Cube Construction, viz., 0·17.

In Dearborn we find that it correlates significantly with Cube Construction ($r = 0·39$) and its correlation with Passalong and Block Design is rather high.

The above statement suggests that there is a probability of the four tests measuring more or less of a common ability. But insignificant correlation between Passalong and Cube Construction, though the former correlates significantly with Dearborn and Block Design, implies the existence of a faculty or an aspect of intelligence or skill manifested by Passalong, Dearborn and Block Design but not by Cube Construction.

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Perfectly in line with the above argument and in view of the significant correlation among Dearborn, Cube Construction and Block Design, existence of yet another expression of intelligence may be postulated which is absent in Passalong.

The above judgment on grounds of correlation would be substantiated when we take into consideration the psychological principles which were explicitly or tacitly displayed in the test situation by the subjects tested.

In the Cube Construction test the fundamental characteristic of intelligence, viz., the function of analysis and synthesis as held by Kohs, has more scope than in other tests in the sense that chance factor here is very limited. The small cubes are partly painted and partly unpainted. In the process of constructing a block by assembling the cubes given in order that it looks like the model, if the subject once put the partly painted cube in a wrong place it is hardly possible for him to replace it successfully without or unaided by proper understanding of the principle involved. A cube with two contiguous surfaces painted if placed in the position where a cube with one surface painted should be placed, and the latter in the former's position—the subject is seen moving it upside down and vice versa and otherwise changing its surfaces in the same position or replacing it by a wrong cube. This and other similar observations show that in Cube Construction, chance success is very rare simply by physical movements. Abstract conceptions of analysis and synthesis seem to be very essential for successful performance. The correlation among Cube Construction, Dearborn and Block Design speaks of a relationship among them in measuring an ability in which analysis and synthesis play a major part.

The low correlation between Passalong and Cube on the other hand shows that conscious application of analysis and synthesis is not a necessary condition of success in Passalong. In the latter the chance factor seems to take an upper hand. On closely scrutinizing the behaviour of the subject at Passalong I observed that there is an idea of end of what to do in the conscious or sub-conscious setting which drives on the movements which are mainly of trial and error nature. The idea of end-result is the guiding principle here and leads the movements to its fulfilment without consciously comprehending the steps leading to correct solution. This is corroborated by the fact that the subjects are seen still blind to the clues of a problem in a particular sub-test even when they have successfully solved the same kind of problems in previous sub-tests. And they start on trial and error and may eventually succeed though the number of erroneous moves may be decreased as they go on with the successive tests. So one cannot make a general assumption that training effect is carried on in conscious terms always. The dynamic character of Passalong lends free scope to chance experimenting more than the other three tests. This combined with the end-drive may constitute the special condition and characteristic of an ability which is exhibited in this test.

The trial and error nature of this test with a training effect, not always made consciously, reminds us of Thorndike's experiment with cats (10). A hungry cat was to make certain movements so that he might remove the latch opening the door of a cage in which food was kept. As long as the urge of hunger was present the cat made irregular and furtive attempts in the first instance in order to get inside the cage. After several vigorous attempts the door was accidentally opened. In consecutive experiments with the same cat the number of erroneous moves decreased until finally the cat learned to open the latch quite directly. In the absence of hunger, however, the same cat made again irregular and futile moves. This shows

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clearly that conscious training is not so much necessary for success as a factor of an end or urge.

As Passalong correlates with Dearborn and Block Design, they represent an ability characterized by a power to persist in attaining a goal unhampered and not discouraged by obstruction and failure, helped by chance.

Of course, it will be untrue to say that Passalong represents nothing but this skill. The ability to grasp relationship is, of course, present in a marked degree in Passalong as in other tests. But what we maintain is that the sensing of relationship is more a matter of chance and end-guided movements than ever deliberate comprehension. This is not to deny that there are individuals who can see the points of right solution and proceed accordingly, but the majority tends to the above conclusion in so far as the present investigation goes.

Idea of an end is, of course, present in Cube Construction also but what distinguishes it from Passalong is that where there is a large possibility of the trial and error movements in Passalong to end in success, spurred by an end-drive without the active co-operation of abstract intelligence, in Cube Construction the idea of end cannot help the subject to an appreciable extent without it.

The correlation between Passalong and Auditory and Visual Memory respectively is very low but that between Passalong and Recognition is significant. The correlation between Dearborn and Recognition is significant. Recognition correlates significantly also with Cube Construction and Block Design. Thus we see that Recognition has a uniform relationship with the four tests. This is what can be logically expected.

In the process of learning by experience recognition of the learned materials and their function in relation to each other plays a conspicuous part. The responses to an altered situation vary considerably according as the stimuli in the given situation evokes recognition of similar ones which were previously learnt, or not.

Analysis of Test-Behaviour

Passalong.—Though primarily success in Passalong depends on movements directed to attain a goal favoured by chance in majority of cases, there were a few individuals who showed high degree of foresight and critical observation. In majority of cases a tendency is noticeable to arrive at the end directly losing sight of the intermediate steps which must be passed over to reach destination. Those who proceed with foresight and critical observation know what will come after an yet unexecuted step. This fore-knowledge or visualization saves for them unnecessary waste of time and erroneous moves.

Some subjects were seen to meet the test with an expert approach and proceeded deliberately and quickly. They seem to understand the principle. Recognition of a familiar assembly of blocks seen in previous tests may at once switch on the right movement. That visual recognition bears some relationship with success in Passalong was demonstrated very often and also evidenced by correlation between Passalong and Visual Recognition ($r = 0{\cdot}31$, significant). In case No. 81, the subject failed in sub-test No. 8; he was next given test No. 9. He took to chance movements and accidently arranged the blocks which resembled the pattern in test No. 7. He at once set to his task deliberately and finished it successfully. Would he be credited with superior adult intelligence? He accidentally came upon the assemblage as in test No. 7, and worked it out. Is he entitled to anything

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more than the merit of scoring test No. 7, specially when we take into account his failure in test No. 8?

The time factor of testing deserves our attention. Some subjects were slow in their procedure but they instead of making unnecessary rapid moves, would go on slowly and perform the task in a steady manner. They seem to prefer planning ahead rather than setting to work at once. What count in their case is steadiness and not quickness. Here again the question of speed versus power comes in, with which we do not like to be engaged at present."

In case No. 29, the subject successfully completed the task in test No. 6, just after the time limit. It seems that some time was expended on planning and when he started work he was definite of success but only time limitation credits him with no score. He had comprehended the right solution before the expiry of the time limit but he finished after the time limit. What is the justification of penalizing him because of his physical incompletion of his task within the time limit?

The successive tests in the Passalong series are so designed that the power of applying knowledge gained by experience can be determined. In our present investigation some individuals exhibited this more or less in their overt behaviour at the tests.

The ability to anticipate change and to alter movements instead of repeating the unsuccessful ones often leads to success. This flexibility of movement does not necessarily involves any plan, method or foresight and does not reflect in the least the carrying over of training effect from the previous tests. Thus there are scorings purely by accident without any evidence of learning. Here again the chance combination helps a person to show his degree of concrete intelligence. We should have these points in our mind when we will try to assess the nature of concrete intelligence later on.

As has been previously remarked these attempts at new combination are inspired and directed by perception of end which is the sole motivating centre in the active conduct of a person struggling for its realization.

Temperamental differences should also be taken notice of, as they seem to contribute directly to success. Some individuals when faced with a deadlock gave it up in despair, expressed their inability and were too loathe to try again and again. On the other hand, there were others who stuck to their task so obstinately that in the face of repeated failures they held on and ultimately succeeded. It is sure that they are in no way superior to the despairing fellows in so far as perception of relationship is concerned, but persistent effort and never-to-accept-defeat spirit got them over the problem. The success was achieved simply by the magic of undaunted trial and error performance sustained by a great urge to attain the goal. Of course it sometimes occurred that in the course of the trial and error feat they got light and then went directly to the solution. This shows that disposition of character or temperamental make-up has much to do with success in practical affairs of life.

Ability to follow instruction is automatically determined in Passalong as in other tests. The instruction that the combination of the coloured blocks must be exactly like the picture in relation to the red and blue ends should guide the course of conduct of a subject. It was found that often they forgot about the instruction and did not feel any need to compare with the picture, but went on foolishly changing a right combination or following a wrong way which they could have avoided if they cared to glance at the picture.

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Dearborn

What holds true in Passalong in regard to intelligent behaviour is equally true in Dearborn also. The static nature of this test though affording much scope for chance success necessitates for a speedy success a proper perception of relation. It tends to induce prejudgement more than instantaneous indiscriminating action. Here the lack of perception of relation is very clearly brought out as in the act of forcing the square peg in the round hole type and the most clumsy way of manipulation. Some individuals who had showed some brilliance in Passalong were sometimes found to be stupid in Dearborn. This is a clear indication that the power of grasping relation, its analysis and synthesis, is definitely more essential in Dearborn than in Passalong where chance plays a major rôle * (14). (See also footnote.)

Slow, unsteady and embarrassed attitude of some subjects bears a further witness to the fact that Dearborn taxes more heavily on the ability of sensing relation and power of analysis and synthesis than Passalong, where presence of relation-perception does not go parallel to quick movement and confidence due perhaps to its dynamic nature offering less resistance to the free play of trial and error.

I noticed an interesting point in Dearborn. This is breadth of vision which was in several cases not an insignificant condition of success. When I say breadth of vision I mean the power of visual survey over the entire field of the board. In the demonstration board the correct placing of insets making room for the extra square was shown at the lower part of the board. In the first test some subjects were seen trying to make room for the extra square at the same lower portion while the upper portion is the proper place to operate upon. They fixed their gaze below and showed no inclination to scan above. If they looked up accidentally the point was seen at once and the problem solved, as took place on several occasions. This tells us that you are to look all around you, every nook and corner, every detail of it, instead of rivetting your attention to a single spot where you expect success most but in vain. This spatial comprehension contributes much to success in practical problems.

Cube Construction

I have discussed in detail the nature of Cube Construction test in the section of statistical analysis. This is a test in which the chance factor is at a minimum and which calls for a vigorous exercise of the power of analysis and synthesis in concrete problems involving relational complex.

Block Design

Block Design combines in itself the characteristics both of Passalong and Cube. Though chance has something to do with it, success cannot be determined by it alone unless guided by the power of analysis and synthesis.

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*In an investigation (14) the correlation between Passalong and Dearborn for the age-group 11–12 (No. of subjects: 39) and 13–14 (No. of subjects 46) is ·423 (P.E. = ·088) and ·485 (P.E. = ·075) respectively.

In another investigation undertaken by the writer the correlation value between the same two tests was deduced to be ·24 (P.E. = ·13) in the age-group 7–13 (No. of subjects 25). All these results point to the intrinsic disparity between the two tests.

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Conclusion

So long concrete intelligence is defined as the ability to deal with concrete situations or practical problems of life. It is differentiated from abstract intelligence in that the latter is manifested in dealing with abstract symbols whereas the former is manifested in the practical way in which a man adjusts himself to a novel concrete situation.

But we are not as yet given the exact components which enter into the composition of concrete intelligence.

So far as our investigation goes we have analysed the psychological factors on purely psychological grounds partly aided, of course, by statistical considerations. Let us see if we can build up a tentative hypothesis from the materials we deduced from the findings.

It is assumed that the four performance tests, which we have selected give us, one and all, a measure of concrete intelligence. Therefore, the sum total of the behaviour patterns ending in definite measurable achievements encompasses the entire significance of concrete intelligence.

It has been observed that an end-drive is a very potent determining factor. This end-drive may or may not be backed up by an intelligent grasp of relation or an ability to proceed by analysis and synthesis. It may be defined as an ideo-motor attunement with the end-result working its way either by the help of active co-operation of intelligence or chance method of trial and error.

This conception agrees well with the Gestalt theory (11). A tension is created and movements follow to relieve it. The character of movements partakes of a self-driven spontaneity seeking to relieve the tension created. This aspect of wholeness ties the beginning with the end as a continuous series. Therefore, the practical significance of this aspect of concrete intelligence shows that if you are perfectly attuned with your desired end the probability of success is more in your favour even if you are not sufficiently endowed with insight to see the relations involved in the environment. Your trial and error performance activated by the urge of attaining the end would sooner or later hit upon the right efforts and success will be yours.

Though the end-drive is the emotive core of concrete intelligence, the latter may not be said devoid of other mental qualities, namely, the power of grasping relation, the ability of analysis and synthesis, breadth of vision, foresight, visualization, critical observation, interest, etc. Concrete intelligence may be compared with a tapestry in which all these qualities are blended and embroidered *en masse*.

No confusion about the end-drive should be entertained regarding its character. It is absolutely an end-drive in relation to the material objects and novel practical situations. What we vaguely call adjusting to a novel situation is, as a matter of fact, executed by the mechanism of end-drive.

In this respect Cube Construction is the least representative measuring instrument in so far as it restricts free immediate course of overt action by ability of analysis and synthesis.

Besides intellectual abilities, temperamental factors cannot be overlooked for success in performance tests. As pointed out, persistence, perseverance and habit of self-composed planning and systematic approach not infrequently won the game where impulsive and impatient types would have given it up in despair. Where repeated failures redoubled the tenacity and energy of determinate and confident individuals, created unwillingness and final abandonment in persons lacking in self-confidence and determination.

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To sum up, concrete intelligence is made up of an establishment of rapport with the material objects in a novel concrete problem or situation, induced by an end-drive and collaborated by intellectual operations involving perception of relation, power of analysis and synthesis and sustained by temperamental qualities such as perseverance, patience, etc.

In conclusion it will be interesting to see how our views of concrete intelligence fit in with the definition of intelligence as formulated by George D. Stoddard.

'Intelligence is the ability to undertake activities that are characterized by (1) difficulty, (2) complexity, (3) abstractness, (4) economy, (5) adaptiveness to a goal, (6) social value, and (7) the emergence of originals, and to maintain such activities under conditions that demand a concentration of energy and a resistance to emotional forces.'(5).

All attributes enumerated above excepting the third attribute of abstractness are obviously involved in concrete intelligence. The fifth attribute of adaptiveness to a goal seems to be the very nature of concrete intelligence.

Regarding abstractness Stoddard remarks:

'The attribute of abstractness lies at the heart of intelligence as defined. By implication it is in every formulation of the meaning of intelligence. Mental activity takes place in symbols and fragments; it is once removed from the physical, the explicit, the complete.'(5).

But the attribute of abstractness does not seem to lie at the heart of concrete intelligence as held in the light of our present investigation. Though it must be conceded that concrete intelligence does imply abstractness, it cannot be admitted that the meaning of concrete intelligence depends solely on its implication.

Summary

1. A Performance test battery was selected and applied to 100 school boys of United Provinces within the age-group 7 to 14 years old.

2. Analysis of results shows no appreciable difference between boys tested belonging to the lower or depressed and the higher caste groups.

3. Analysis also revealed that responses to test situations tend to be differentiated into two sets of psycho-physical patterns, one set involving trains of relational thinking which contribute more or less to the performance of the tests and the other an ideo-motor attunement or drive attitude in relation to the goal which may achieve success in tests independently of abstract relational associations.

4. Passalong test seems to be most representative of the latter form of reaction while the other tests seem to tax more or less the higher mental processes of relational apprehension and analysis and synthesis.

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THE INDIAN ABORIGINES AND THEIR ADMINISTRATION[1]

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Abstract

The aboriginal population of India may be divided into 3 distinct zones, namely a North-Eastern, a Central and a Southern Zone consisting roughly about 25 million population. The exact figure is uncertain as the 1941 Census estimates are not accurate. In the North-Eastern Zone are included the tribes living in the Sub-Himalayan region, the contiguous parts of Assam and the North-East Frontiers of India which stretched up to Bay of Bengal in undivided India. These tribes, again, can be divided into 3 distinct groups, namely those living in the Sub-Himalayan region like the Lepchas of Darjeeling district. Then there is a middle group inhabiting the Central Massif. The northern and eastern frontiers of Assam, comprise the Balipara, Sadiya, Abor, Tirap and the Naga administrative tracts. The Naga tribes are ethnically analogous and actually merge into the tribes living across the frontiers in the Hukwang Valley of Northern Burma, such as the Htangan, the Rangpan and the Haimi Nagas. Further below we have the Kukis, the Chins, the Lushais and the Hill Tipperahs. In the Central Zone the largest concentration of aboriginal tribes occurs, stretching across the country from the spurs and slopes of Vindhya, Satpura, Mahadeo-Maikal and the Ajanta lines, to the Eastern Ghats. Chief among these tribes are the Munda, the Gond, the Santal, etc. The Southern Zone which falls below latitude 16° north comprises such tribes as Chenchus, etc. These tribes are not only geographically separated but can be divided also on ethnical and linguistic grounds. In the Southern Zone their original language has been given up and they speak mostly broken forms of Tamil, Malayali and Telegu languages and are generally primitive, living on food gathering and hunting. There is an appreciable element of Negrito racial type among this group. In the Central Zone the tribes generally are Austro-Asiatic speaking, though in some cases they have adopted Dravidian and Aryan languages. Among these tribes, the communal life is better organized with village councils under a headman, and acculturation has proceeded very far. In the North-Eastern Zone the tribes show characteristic Mongoloid features and among many like those between the borders of Assam and Tibet, e.g. the Mishmis, the Abors, the tribal organization is almost in tact. The same is true of the Naga tribes, the Kuki-chin group, etc.

The administration of the aboriginal people is a very difficult problem, for on the one hand it is a mistake to keep them completely isolated, as isolation leads to stagnation and decay. On the other hand, indiscriminate contact is also harmful to the tribes, as is shown by the rapid depopulation of the primitive tribes in Australia, Melanesia and U.S.A. The correct policy of administration should safeguard the tribal integrity and social organization at the same time evolving ways and means of gradual adjustment of the tribal population to changed conditions and slow integration in the general life of the country without undue and hasty disruptions. The healthy, vigorous and colourful life of the aboriginal population should not be substituted for a life of emasculation and stagnation in the name of reform and progress.

Introduction

Among the people of India there are a number of tribes who still are in a very primitive state of existence, subsisting on hunting, fishing and forest produce or by simple forms of agriculture. The term 'aboriginal' was usually applied to them, but Prof. G. S. Ghurye[2] in a recent publication has questioned the correctness of the expression. In his opinion, 'the question as to who are the earliest settlers of India remains still open.

[1] This paper was prepared under the instructions of Mr. V. P. Menon, Secretary (Public) to His Excellency the Governor-General of India and submitted to the Government in 1946. The views expressed here are those of the author only and not of the Government.

[2] Ghurye, G. S., 'The Aborigines—"so called" and their future.' Gokhale Institute of Politics and Economics, Pub. No. 11, Poona, 1943.

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Under the circumstances it is hardly right to speak of the tribes as aborigines.'[1] Again, 'science and history do not countenance the practice of calling these tribes aborigines.'[2]

It is true, as Prof. Ghurye remarks, that 'the internal movements' of all these tribes are not known, nor that all of them have been occupants of their present habitats. We know, for instance, that the Oraons and Mal Paharias of Chota Nagpur, migrated from southern parts in comparatively later years, and the penetration of the Kukis into the Assam hills has continued up to the present times.[3] But there is no evidence to show that their presence in the country as a whole is recent. On the contrary their distribution in marginal areas and inaccessible forests and mountain tracts suggest an ancient history on the analogy of the well-known zoological law that older forms of animals survive today in marginal regions. From ancient Sanskritic records it is also clear that when the Aryan speaking Vedic immigrants came to India, they encountered 'people of dwarfish stature with flattened features and complexion of a charred stake'—a description that fits them very closely—having as their abode 'hills and forests and the Vindhya mountains, such as the Nisadas, Kiratas Billas, Nahalakas, Bhramaras and Pulindas'.[4] Similarly there are references in old Tamil literature to the subjugation of nomadic wild tribes such as the Kurumbar by Karikal Chola, who found them in occupation of parts of the Tamilakan,[5] and of such tribes as the Villavar (Kanarese Billavar) and Minavar who lived in the hills and jungles and were considered to be the oldest known inhabitants of that area.[6]

The Oxford Dictionary gives the meaning of the word 'aborigines' as 'first inhabitants or those found in possession by colonists'. Even if there may be doubts about these tribes being the first inhabitants of India, there is no reason why the term should not be applied to them in the latter sense, as they were found already in occupation of the country when the Aryan and the Dravidian speaking peoples first came in contact with them.

The total number of aboriginal population as estimated in the Census of 1931, the first to take their Census since 1891, was 22,407,492 excluding those that are largely detribalized, e.g., the Kuruba of Mysore among whom only 12 thousand out of a total population of over 2½ lacs returned themselves as tribal, or nomadic tribes of the type of the Banjara or Kaikadi, who are not really primitive. This figure is only approximate, for due to close contiguity and contact a considerable portion of tribes like the Bhils, Kols and Gonds merge imperceptively into the Hindu community and are very difficult to separate. Of this grand total, a little over one-third, or roughly eight and a quarter millions conform to tribal institutions, more or less intact, and the rest show acculturation in varying degrees.

Distribution of Tribes

Broadly speaking there are three distinct zones in which the tribal people of India can be divided, namely: (1) a North-Eastern Zone, (2) a

[1] Ghurye, G. S., *op. cit.*, p. 13. [2] *Op. cit.*, p. 14.
[3] Hutton, J. H., 'Assam Origins in relations to Oceania.' Presi. Address, British Association, Section H, p. 176–77, Nov. 1937.
[4] Chanda, R. P., 'The Indo-Aryan Races', which gives an excellent summary of the accounts of these tribes in the Vedic and Pauranic literatures, pp. 4–6, Rajshahi, 1916.
[5] Kanakasabhai, V., 'The Tamils Eighteen Hundred years ago,' p. 67 and 28, Madras, 1904.
[6] *Loc. cit.*, p. 39.

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Central Zone, and (3) a Southern Zone. In addition there are a few scattered tribes who have been isolated from the main bodies; and there are also groups in the high mountain tracts of North-Western Himalayas, such as the Chiangpa and Ladhaki of Kashmir and the Lahouli and Jaunsari to their south-east, who, though keeping their tribal institutions intact and retaining several archaic features, can by no means be called ethnically primitive. In the first or North-Eastern Zone there are roughly three million people comprising such tribes as the Gurung, Limbu, Lepcha, Aka, Dafla, Miri, Abor, Mishmi, Khamti, Singpho, Mikir, Rabha, Kachari, Khasi, Garo, the Naga tribes and the Kuki-Lushai, Lakher, Chakma, etc. These tribes are scattered over a very large area in the Sub-Himalayan region and the mountainous areas of Assam and North-Eastern India merging gradually into those of Burma and southern Yunnan, from which no strict line of demarcation either from the geographical or ethnical standpoints can be drawn. They form, on the whole, a compact block and with minor interruptions are continuous along the whole of the North-Eastern Frontiers of India.

Those who inhabit the Sub-Himalayan region are the Gurung and the Limbu of eastern Nepal and the Lepcha of Sikkim. The Rava, Mech and the Kachari live in the Goalpara, Kamrup and Darrang districts, and with the Garo, Khasi and Mikir, who occupy the Central Massif separating the Brahmaputra from the Surma Valley, constitute an inner ring whose outer perimeter is formed by the tribes living in the hinterland between Assam and Tibet, and in the valleys and mountain ranges that divide India from Burma.

There are three specially defined areas for the administration of these tribes known as the Balipara, Sadiya and Tirap Frontier Tracts. The first two are on the north and north-eastern borders of Assam and extend up to the McMohan line, fixed by the Simla Convention of 1914 as the provisional boundary between Assam and Tibet.[1] The tribes living here are the Aka, Dafla and the Miri on the west of the Subansiri river; between it and the Dihang (as the upper waters of the Brahmaputra are called) are the Galong and the Minyong and between the Dihang and the Dibong are the Padam, Pangi and the Pasi tribes of the Abor group.

The Mishmis with their sub-tribes occupy the whole country from the Dibong to the Lohit river, along which also runs the trade-route to Rima and Tibet; the Chulikata and the Bebejiyas living on the western, and the Digaru and Meju on the eastern parts. Further east, stretching towards Burma, but within the Sadiya Frontier Tract are to be found the Khamtis and somewhat south-west of them, the Singphos. The Tirap Frontier Tract, which was separated from the Sadiya in 1942, lies below it and was named after the Tirap river, a tributary of the Brahmaputra, is chiefly inhabited by the Rangpan Nagas. It is through this territory that the Ledo road, running through the Hukawang Valley to Yunnan was constructed during the war. From here as far south as Manipur and extending westwards beyond the Dhansiri up to the Rengma Hills in Golaghat district lies the home of the Naga tribes, which on the east includes the valleys and mountain ranges up to the Patkoi and across it to the western parts of the Hukawang Valley of Northern Burma.

The Nagas are divided into five major groups of which the northern branch include the Rangpan and the Konyak; the western, the Rengma Sema and the Angami; the Central, the Ao, Lhota, Phom, Chang, Songtam

[1] Reid, Sir Robert, 'The Excluded Areas of Assam,' *The Geographical Magazine*, p. 19, Vol. CIII, 1944, London.

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and the Yimtsungar; the Southern, the Kacha and the Kabui Naga, and the Eastern, the Tangkhul and the Kalyo-Kengu. Of these, large sections of the Rangpan, Konyak, Kalyo-Kengu and some settlements of the Chang, Sangtam, Yimtsungar, the naked Rengmas and Tangkhuls live in the unadministered areas on high mountain ranges on Assam borders which merge imperceptively into the independent Naga territory of Burma, extending as far as the western edge of the Hukawng Valley, and between the northern spurs of the Patkoi, down to the southern base of the Sangpum Bum where the Namphuk Hka joins the Tanai Hka (Upper Chindwin). Within this wild mountain tract the most important Naga tribes are the Htangan, who live on the west of the Namphuk Hka, the Wanga and the Pyenod Nagas towards the south, and the Rangpan and Haimi, in the north and centre of the Triangle. All of them are inveterate head-hunters and it is among the Rangpan and the Haimi that human sacrifice still persists.[1]

South of the Naga Hills is the State of Manipur and towards the west, the 'excluded area' of North Cachar, along the fringe of which the Naga settlements continue. Around Dimapur (the ancient capital of Cachar), however, the Kacharis are still found, and Mikir villages leading on to the Mikir hills of Nowgong and Sibsagar. From Manipur the tribal territory extends through the Lushai Hills, the hilly parts of Tipperah and the Chittagong Hill tracts into the Arakan Yoma ranges, which finally culminate at Cape Negrais. This part is really the westward extension of the Chin Hills of Burma. The tribes that occupy it are the Kukis, the Chins, the Lushais, the Lakhers, the Hill Tipperahs, the Chakmas and the Maghs, who are either overflows of tribes from across the frontiers or are closely linked with them. In fact, along the entire North-Eastern Frontiers of India there is no clear line of demarcation between Assam and Burma as far as the Chindwin river. From the northern spurs of the Patkoi to the southern tips of the Chin Hills, the entire tract forms a single geographical and ethnical unit closely knit in race and culture.

Separated from the North-Eastern Zone by the Gangetic plains is the central mountain barrier that divides the Northern from the Peninsular India, and has provided a refuge for the aboriginal inhabitants from times immemorial. The tribes living in this territory occupy the spurs and slopes of the ranges of the Vindhya, Satpura, Mahadeo-Maikal and the Ajanta lines stretching across the country and joining the Western with the Eastern Ghats, with subsidiary hills as far north-west as the Aravalli and southward into the forests and uplands of the Nizam's eastern dominions. This mountain belt, roughly between the Narbada and the Godavari, contains the largest assemblage of India's aboriginal tribes forming in many cases compact blocks continuous with each other.

On the easternmost portion of this territory, the Rajmahal Hills which forms a wedge of the plateau into the Purnea, Malda and Murshidabad plains, contain the Malpaharia or the Sauria Paharia tribe, who appear to be the eastern outpost of the Oraons or at least very closely related to them. They are found in the Godda, Pakur and Dumka sub-divisions.[2]

Somewhat to their south-west in the Santal Parganas are the Santals who are spread over the entire Chota Nagpur plateau from Palamau to Singhbhum and in recent years have overflowed into the 'Barind' (quasi-laterite formations) on the border districts of Bengal from Dinajpur to

[1] Dewar, T. B., Confidential Report on the Naga Hills (Burma) Expedition for the abolition of Human Sacrifice during 1926-27.

[2] Sarkar, S. S., *The Maler of the Rajmahal Hills*, Calcutta, 1938.

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Midnapur (they are the largest tribe in India). Side by side with them live two other widely known primitive tribes, namely, the Oraons, whose habitat extends from the Sarguja and Jashpur States of C.P. to the western and Central portions of Ranchi, and the Mundas who occupy the southern parts of the same district. On the north-eastern parts of Chota Nagpur along the highlands running from Ramgarh through Ormanjhi, Angara and Ranchi to the Manbhum district are found the Birhors. There are two other important tribes who live on the eastern outskirts of the plateau, namely, the Hos and Bhumij of Singhbhum and Manbhum, who have penetrated further south into the Orissa hills, and as Hill Bhuiyas occupy the wooded hills in the interior of Keonjhar, Bonai and Pal Lahara around the junction of these three States along with the very primitive and shy Juangs, the two between them occupying a contiguous land in these States, principally in the hills along the upper catchment of the Baitarini river.

Extending from the Simlipal range in Mayurbhanj to Singhbhum and Manbhum on the Bengal borders across the Chota Nagpur plateau, as far as Jashpur, Raigarh and Bilaspur in C.P., are found the widely scattered Kharias. On their south, in the hilly tract known as the Khondmahals, in the Angul district of Orissa, is the home of the erstwhile human sacrificing Khonds.

Further south in Koraput and its adjoining hill districts there are a number of little known tribes such as the Godabas, Bondos and Dires and on the edge of the Eastern Ghats in the Ganjam, Vizagapatam and East Godavari districts there live the Savaras and the Koyas.

In the middle and western portions of the central mountain belt the chief and the most numerous tribes are the Kols or Koli, the Bhils and the Gonds. Of these, the Kols have extended from their original home in Kolhan, near Chaibasa in the Singhbhum district, over a large part of the plateau of Chota Nagpur and Central India as far north as the Mirzapur district in U.P., and to the slopes of the Western Ghats in Bombay as far as Nasik and Ahmednagar.

The Bhils occupy the western ranges of the Vindhya and the Satpura and are found throughout the Malwan plateau in the States of Ratlam, Dhar, Jhabu, Barwani and Indore. On the west they have extended as far as the Aravalli hills and from the Panchmahals in Gujrat to Nasik and Thana. Other tribes living on the foothills and forested tracts of the Western Ghats are the Dubla and the Dhodia who live in Surat and Thana, the Varli and the Katkari who extend from West Khandesh to Nasik and Thana and the Thakurs who occupy northern Konkan and Thar.

The Gonds, the former rulers of Gondwana or the land of the Gonds, as a large portion of the Central Indian plateau was formerly known, are now found in two main tracts, namely: (i) the wide belt of forests and broken hills south of the Satpura-Mahadeo line from Betul to Mandla, and (ii) the territory extending from the southern parts of the Chattisgarh plains to Adilabad in Hyderabad including large portions of the Chanda district and the States of Kankar and Bastar.

Besides these three, there are a number of smaller tribes like the Korku, who live on both sides of the Satpura range within the districts of Namur, Hoshangabad, Betul and Chindwara, and the Agaria and the Pardhan (a branch of the Gond), who are found chiefly in the Maikal Hills. The Baiga is another very primitive tribe, who are found principally in the Mandla district from the hills bordering on the Narbada in the Rewa State along the entire Maikal range from Amarkantak to the Seletekri hills.

South of the Central Provinces, in the hills and uplands of the Kankar and Bastar States, the furthest penetration is found of the Central Indian

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aboriginal tribes, of which the Murias live in the Kondagaon and Antagarh districts, the Hill Marias in the picturesque Abujhmar Hills and the Bison-horn Marias near Dentewara in the Indravati valley.

The plateau of Peninsular India is roughly divided along latitude 16° by the course of the Kistna river which cuts deeply into the rocks and forms the natural geographical frontier separating the northern from the southern portion. Into this region falls the third major zone of India's aboriginal population who sought and obtained shelters in the deep forests and mountain spurs of the marginal areas. All along the converging main lines of the Eastern and Western Ghats, broken by river valleys and their escarpments, are concentrated the chief groups of these tribes. Beginning from the north-east, the Chenchus occupy the arc of the Nallaimallais in Guntur and Karnool districts, though a small body has now moved across the Kistna into the Farhabad Hills of the Hyderabad State.

Another branch of this tribe[1] known as the Yanadis occupy the eastern spurs of these hills in the Nellore district. Along the Western Ghats, the northernmost tribe is the Koraga of South Kanara. South of them in the lower slopes of the Coorg hills are found the Yeruvas. A little towards the east and the south, on the slopes of the Biligirirangan Hills on the borders of the Mysore State, are the Sholagas who stretch southwards to the jungles of the Coimbatore district.

South of Mysore, the top of the scarp formed by the meeting of the two Ghats and known as the Nilgiris or the blue mountains, is the home of a large number of tribes. The plateau of the Nilgiris of about 500 sq. miles is occupied by the Todas, Badagas and the Kotas whose economic lives are closely interlinked. The jungles and slopes of these hills are inhabited by the Irulas who occupy the north-eastern parts, the Kurumbas who are on the western fringes extending north-west into Wynaad and Ernad taluks of Malabar, and the Paniyans who inhabit the Mudanad, Cherangod and Namblakod amshams of the Nilgiris district, and Kurumbanad and Kottayam taluks of Wynaad, which skirt the base of the Ghats.

Below the Palghat Gap, the Annamallai Hills contain the home of the Kadars who are spread over the interior of the hill and along its southern ranges into the States of Cochin and Travancore. Another jungle tribe, the Malsers or Malayans live at the foot of these hills.

From the Cardamom hills to the south-western extremity of the Travancore State, throughout the uplands and mountain valleys, there are a number of other aboriginal tribes besides the Kadars and the Pulayans, who have overflowed from the upper contiguous tracts as far as the neighbouring districts. Of the latter, the Mudavan, Mannan and the Urali inhabit the north-eastern, the Hill Pantaram the Central, and the Kanikar and the Mal-Vadan the southern sections. The Thanda Pulayan (who are now detribalized) and the Mala-Kuravan occupy the western fringes of the hills extending up to the coast.

In addition to these three major zones, there are groups of other folks scattered over the country or within the Indian political sphere. Of these, the Andamanese and the Nicobarese who live in the islands bearing their names in the Bay of Bengal, though now separated from the main body of India's aboriginal tribes, are ethnically connected with them. The rest, though called tribal, mostly living on the north-western and northern mountain valleys on the frontiers of India, are not aboriginal in any sense

[1] E. Thurston, *Castes and Tribes of South India*, Vol. VII, p. 416.

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of the term. They are either overflows of Tibetan people from the adjoining Tibetan territories like the Chiangpa, Brokpa and the Ladakhi of the upper Indus valley and the Lahouli a little to their south-east, or like the Jaunsaris of Jaunsar-Bowar, Balti, Machnopa and the Dardi of Northern Kashmir and the Kati and the Khalash tribes of Chitral Kaffiristan, are really remnants of very early waves of 'Aryan' immigration from Central Asia, and who have long been isolated in these mountain valleys and retain in a large measure several archaic institutions but racially of purer types than Indians of the plains. The Burish of Hunza, though racially akin to the Dardic group speak an un-Indian language whose exact affinity has not yet been determined.

Linguistic and Cultural Divisions

When one considers these tribal zones as a whole they are found to be separated not only geographically but also on the basis of language and culture, although there are certain common traits due either to contact or as elements of their original institutions.

To begin with, in the *Southern Zone*, which is numerically the smallest, tribal life is extremely backward and there are in it some who are the most primitive of the aboriginal population in India. As happens among people of very simple culture, the tribal languages have altogether vanished and they now speak languages borrowed from their neighbours. Thus, the Chenchus living in the heart of Andhra speak a corrupt form of Telegu, the Pulayans of Tamil, the Kadars, Uralis, Kanikars, etc. of Malayali and the Yeruvas and Kurumbas mostly Kanarese. What their original languages were, either having affinity with Indian languages or related to someone outside, like that of the Andamanese, it is difficult to guess. Careful investigations by trained linguists may yet discover from preserved forms and vocabularies, important evidence, but Indian scholars have not so far shown any interest in this line, although the lead was given by Prof. M. B. Emaneau of California in his recent studies among the tribes of the Nilgiris.

The basis of tribal life in this zone has centred round hunting and food gathering in a state of semi-nomadism. Agriculture was unknown in any form and the sole implements for digging roots and tubers were a bill-hook and the digging stick. Weapons of any kind, even bows and arrows, did not exist and life depended on forest products, collection of honey and fruits of the chase, birds that could be caught and small animals trapped. In this respect they are inferior even to the Andamanese who possess powerful weapons such as spears, harpoons and bows and arrows and know the use of outrigger (single) canoe. Fire was made by friction or by a drill and originally the wearing apparel consisted only of an apron made of leaves as was found among the Malavetan as late as 1882 or grass skirt as is still seen among the Thanda Pulayans.

All sources of authority were vested in the village headman, who adjudicated disputes and performed the rituals of the hunt. The tribal structure was on the basis of dual organization. The Kadars, Pulayans, Mudavans and the Hill Pantarams exemplify this culture in its present form, as also the Chenchus, although they have learnt the use of bow and arrow. Others like the Uralis, Mannans, Muttavans, Kanikars and Kurumbas now practise shifting cultivation either of ragi or rice, but the bill-hook is still used for clearing the jungle and the digging stick for sowing. The elaborate rituals of the hunt are still the major features of their life and the gathering of honey and trapping of animals, their occupation.

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Matriarchy forms the basis of family life and the Marumakkathayam law determines inheritance. This is shown clearly in the tribes living on the Western Ghats, but even among those like the Kadars and Chenchus, who have come under outside influence, there are unmistakable traces of matriarchy, as for instance, among the Kadars though the son is the natural beneficiary, the Mooppanship (the office of the headman) goes to the sister's son.[1]

Apart from patriarchal customs there are some other institutions, like the use of blow gun and terraced cultivation among the Multhuvans of Anjanad, which were probably due to Malay influence.[2]

The occurrence of bachelors' and spinsters' dormitories among the Kanikkar,[3] Malthuvans,[4] the development of a village council and even that of a tribal chief, Met-Vaka among the latter, are other features which have subsequently developed from contact. There are also evidence of polyandry[5] among the tribes on the Western coast from the Paliyan, Ullatan and Malayaran, extending up to the Irulas of the Nilgiris.

Barring the group on the higher plateau of the Nilgiri hills who forms a corporate unit with the pastoral Todas as the centre, the entire body of South Indian tribes is at basis one single ethnic whole with local variations and developments that had taken place subsequently due to contact-metamorphism. (Plate I, figs. 1–3 and 5-6; Plate II, figs. 1, 2 and 4).

In the *Central Division*, on the other hand, the tribes have in the main, retained their original languages belonging to the Austric family with the exception of the Bhils and the Kol, who now speak Aryan, and the Gond, Khond, the Oraon and the Malpaharia, Dravidian, after having abandoned their ancestral tongues. The branch of the Austric family to which these languages belong, was first isolated by Max Muller in 1854 and named by him 'Munda', but whose affiliation to that widely distributed family of languages which covers a large part of Eastern Asia and Oceania, has been due chiefly to Prof. P. W. Schmidt, who named it after his native country, 'Austric'. In Central India it extends as far west as the Western Ghats but it did not penetrate beyond the Godavari on the South. It is an 'agglutinative' language and its characteristic features are the extraordinary development of 'suffixes' and 'inflexes' and absence of masculine and feminine genders (excepting Khasi), objects being distinguished according as they are animate or inanimate. Neither does it possess the real 'verb', factors which are obstacles in the development and expression of thought.

These tribes are on higher stages of culture than the southern aborigines. Although, as among the Juangs of the Keonjhar and Pal Lahara, the dress consisted originally only of a girdle of beads and aprons made of leaves, bark cloth appeared to be the usual dress as it is still worn among some of the southern Orissa tribes. Instead of the typical food gatherers' life, shifting cultivation is the prevalent form of food production, and the hoe and the axe have taken the place of the digging stick and the bill-hook as chief implements, though the latter survive among the wilder sections of the tribes in the interior. Terracing is widely practised and where contact has been closer, as among the Bhuiyas of Bonai, even plough cultivation is not unknown now-a-days.

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[1] Govinda Menon, K., 'The Kadars of Cochin', *Census of India*, 1931, Vol. I, Part III, p. 214.
[2] Hutton, J. H., 'Tour Notes', *Ibid.*, p. 12.
[3] Krishna Iyer, L. A., *Travancore Tribes and Castes*, Vol. II, p. 9, 1939.
[4] *Loc. cit.*, p. 5.
[5] *Loc. cit.*, Vol. I, pp. 100–101.

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Among these tribes the houses are more solidly built and the life is more settled with developments of arts and crafts, such as basketry, wood carving and implements of different kinds, etc. Communal life is better organized with village councils (Panchayats) under the village headman. In the more advanced tribes like the Santal there is in addition, a 'Dihri' or district court for adjudicating inter-village affairs and a Supreme Council of the tribe—the Hunt Council, for deciding matters concerning the whole tribe elected on purely democratic lines.[1]

Marriage by capture was the usual practice and Ghiskar-lijana, as the Bhils call it, is still indulged in by them. Relationship is determined on the classificatory basis and inheritance according to patriarchal principles.

The whole social life of the tribe centres round the bachelors' dormitory or 'Dhumkaria', and in most cases there are separate dormitories for boys and girls. Among the Murias of Bastar, the dormitory or the Ghotul is shared by both boys (cheliks) and girls (motiaris). They do mostly fagging for the village, and duties are apportioned and discipline strictly enforced.

Folk dancing and music are popular and there is a considerable development of poetry and songs. (Plate I, fig. 4 ; Plate II, fig. 3).

Religion is mostly propitiation of spirits by means of sacrifice and the practice of magic and witchcraft is widespread, but the conception of a Supreme Being is not unknown. The megalithic cult is present among some like the Tadvi Bhils of Satpura range and the tribes of Palamau, who still raise rough stone monuments over their dead. Human sacrifice associated with fertility cults, such as was current among the Khonds, was largely practised at one time. But head hunting as an institution was unknown and the tribal life was not organized on war basis.

With regard to the *North-Eastern Zone*, all the tribes speak languages belonging to the Tibeto-Chinese family. It was essentially an isolating or monosyllabic language, but among the Tibeto-Burman branch, to which the majority of the tribal languages of Assam and Burma belong, the agglutinative principle has now superseded the isolating. The characteristic features of these languages are that they do not have the 'real verb' and are able to express concrete ideas only and are not good media for expressing abstract conceptions or higher thoughts—a peculiarity which has had considerable psychological influence in moulding the minds of the speakers to an objective rather than to a theoretical outlook. They are distinguished from the 'Austric' languages in possessing significant tones. Of the Tibeto-Burman sub-family, the Limbu speak what are called pronominalized and the Lepcha and the Gurung non-pronominalized dialects of the Himalayan branch. The languages of the North Assam tribes, such as those of the Aka, Dafla, Abor, Miri and Mishmi belong to the North Assamese, the Naga languages to the Naga and those of the Manipuris, Kuki, Lushai and Chin to the Kuki-Chin groups. To the group called 'Bodo' or Bara (lit. man) belong all others from the Garo hills up to Tipperah. There is one exception however, namely the Khasis, who form a small distinct island by themselves, speaking a language belonging to the Mon-Khmer branch of the Austric family.

In this group there is no tribe which is purely in the hunting and food-gathering stage. Even the very primitive Lepchas living on the southern and eastern slopes of the Kanchanjunga massif—apparently the westernmost outpost of the same ethnic group as represented by

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[1] Boddy, P.O., 'Notes on the Santals', *Census of India*, 1931, Vol. I, Part III, p. 99.

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the Mikirs in the Brahmaputra valley—are settled agriculturists living on terraced fields. Fundamentally they share the same culture pattern as the other Sub-Himalayan people further east, namely, pile dwellings, woman's equal share, though patrilineal in the management of household affairs and work in the field and the prevalence of junior levirate and sorrorate.[1] Coming however under the ambit of Tibetan influence the Lepchas have developed fraternal polyandry and sexual communism among those belonging to the 'classificatory' relationship.[2]

Among those living on the inner ranges, it is possible to distinguish a substratum of matriarchal-megalithic culture complex which runs throughout from the Garo Hills to North Cachar. Matriarchy is highly developed among the Khasis and the Garos. The Khasis consider the woman to be the originator of the clan—*long jaid na KaKynthei* and reckon descent through the female. She alone can inherit property and Ukni (the maternal uncle) rather than Ukpa (father) is the real guardian of the house. The most venerated ancestors are *Ka Iawbei* (the first grandmother) and *U Suid-Nia* (the first maternal uncle) rather than *U Thaw-Lang* (the first grandfather), and it is in honour of the first that most of the memorial stones were erected.

The Garos likewise are matrilineal and property goes to the females, but unlike the youngest daughter who inherits the bulk of the maternal property among the Khasis, it is the husband of the daughter (usually the sister's son) who as *Nokrom*, manages the uncle's property and inherits his widow, i.e. wife's mother as his wife.[3]

Among the rest of the group like the Rabhas, Mikirs and Kacharis, patriarchy is gradually superseding or has already done so leaving however relics of matriarchy which are unmistakable. Thus among the Rabhas, although property is inherited by the son, descent is still reckoned through the female and the children belong to the mother's *Barai* (clan) and the original founders of the tribe was Toba Rani and her maternal uncle, Dadam.[4]

Similarly among both the Mikirs and the Kacharis there is the custom of the bridegroom's serving in the house of his wife's father for two or three years. In the latter this may extend to 14 or 15 years and the groom may sever all connections with his own family and identify himself completely with that of his wife by becoming *Mal-Ghar-Jiya*, when the property of the father-in-law after death goes to his wife and him.[5]

There is evidence also of megalithic culture among these tribes. The huge stone monuments at Dimapur, the ancient capital of the Kacharis and among the Mikirs, both upright (long-chong) and flat stones (long-pak) are still set up as memorial stones over the buried bones of prominent members.[6]

The Kima memorial posts erected by the Garos[7] are evidences of the same culture. It seems also that the practice of human sacrifice was widely prevalent among them, corresponding to the U Thlen (Snake) worship of the Khasis. The Rabhas[8] have a legend of the Serpent God to whom human sacrifice was made and among the Deori Chutias (sub-tribe of the

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[1] Gorer, G., *Himalayan Village*, p. 159.
[2] *Op. cit.*, pp. 225–34.
[3] Playfair, A., *The Garos*, p. 72, 1909.
[4] Friend-Pereira, J. E., 'The Rabhas,' *Census of India*, Vol. III, pp. 141–45, 1912.
[5] Endle, S., *The Kacharis*, p. 45, 1911.
[6] Stock, Edward, *The Mikirs*, p. 42, 1908.
[7] Playfair, A., *Garos*, p. 16.
[8] Friend-Pereira, *op. cit.*, p. 145.

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Kacharis) of Lakshmipur, up to comparatively late times human sacrifice used to be offered at their temple at Chunpura, near Sadiya.[1]

The Khasis however, do not have the pile dwellings or the institution of bachelors' dormitories, common among the Tibeto-Burman speaking group, though they share with them the practice of Jhuming cultivation, and like the Mikirs, the sleeveless coat and the shoulder-headed celts. Political organization is most highly developed on republican lines and they are easily the most progressive of all tribal people in India.

On the outer fringe, in the hinterland between Assam and Tibet the entire organization of the tribes is on a war basis and although defensive measures are not unknown among other Tibeto-Burman speaking tribes of the Central Massif, like the Garos who use sharpened bamboo stakes (Wanisi) around their villages, there is nothing like the fortress-like villages, perched on high mountain spurs surrounded by bamboo palisades or strong log or stone stockades, *panjee* (stakes) or covered with sharp bamboo pieces and flanked by chutes. The tribes live in constant feuds and one of the chief causes of quarrel being the accusation of 'carrying sickness'. Unlike the Nagas, however, they do not indulge in head hunting, but like them they have large rectangular pile dwellings often of a communal character and the institution of dormitories for unmarried men and women called *Moshup* and *Rasheng*, the former of which is also the guard house, armoury and the village club. They wear cane helmets decorated with dyed hair, boar's tusks, horns of the mithan and beaks and feathers of the hornbill. Short bark cloth[2] was formerly worn but nowadays sleeveless coat for men and short cloth in the shape of a skirt for women, and filaments of cane closely woven for covering the breasts and a girdle of cane with metal discs called *Beyop* round the loin for women. Another characteristic is the use of cane rings on the ankles, and both the sexes coil cane straps round the arms and legs.

Jhuming is the main form of agriculture and the digging stick, *dao*, are used.

Hereditary priestly shamanism is prevalent, and among the Abors, the Shamans (Miris) can be either men or women.

In the Naga-Kuki group, the organization of the tribes is on the same war-footing and the villages are perched on mountain spurs and protected by stockades and the institution of bachelor's dormitory, *Morung*, is equally a characteristic feature. Milk is not drunk, as among all the hill tribes of Assam, but the meat of mithan is used as food. Jhuming is the common method of agriculture with digging hoe, axe and *dao*. Terracing with an elaborate system of irrigation by aqueducts, has made most rapid progress among the Angami, Sema and others. Elaborate war dances are in vogue and decorations in which mithan horns, hornbill feathers, dyed hair and cowry shells figure most prominently. The great 'Feasts of Merit' by which Nagas try to climb their social ladder, are distinctive features of Naga-Kuki life in which the whole village joins in merriment and a great distribution of wealth takes place.

What however distinguishes the tribes on India's North-Eastern Frontier, such as the Nagas, Kukis and constitutes the most important feature of their tribal life is the practice of head hunting. There are evidences of this practice among other Tibeto-Burman speaking people in Assam like the Garos, and it is found in a very wide area from Formosa, through Indonesia up to the interior of New Guinea. It not merely puts to

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[1] Endle, S., *op. cit.*, pp. 93–94.
[2] Hamilton, A., *In Abor Jungles*, p. 20.

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the test great feats of endurance and bravery in a young man and makes him eligible for marriage, but the practice is intimately connected with the phallic cult and the Naga belief that Life-Matter can be transferred to living organism and material substances deficient in vitality. It is, therefore, considered necessary to add to the stock of the general village Soul-Matter for the propagation of animal and cereal life by means of raids and preservation of the skulls in the village.[1] Human sacrifice practised by the Hukawang Valley Nagas is due to the same reason, as a means of curing diseases by supplying vitality to the sick person and for fertilizing fields for successful crops. (Plate III, figs. 1–5; Plate IV, figs. 1-2).

Racial Affinities

When the physical characters are taken into consideration, the tribal alignments seem to follow somewhat different lines than those shown on linguistic and cultural grounds. This is natural as the latter are acquired and are too often abandoned for others whereas the physical traits are fixed by heredity and cannot be altered except through miscegenation.

Judged by their somatic traits there is first of all an underlying Negrito strain in the aboriginal population of India. At the present time it is no doubt greatly submerged but remnants are still found in remote hills, and from the evidence available there is hardly any doubt that it was much more widely spread at one time. The presence of a Negrito race in almost in its pure form has long been recognized among the inhabitants of the Andaman Islands, but its existence in the Indian continent was not considered established. Even so well informed a scholar as Sir Herbert Risley[2] considered that 'no good observer had as yet found among any of the Indian races a head of hair that could be correctly described as "woolly" although the terms "woolly" and "frizzly" were often loosely applied to the wavy hair not uncommon among the Dravidians.' It is true that the term 'woolly' is not strictly applicable to human hair; the sheep's wool being of a finer texture and shows the true pile formation which can only be made artificially in man.[3] But instances of spirally curved hair with tiny spirals misnamed 'woolly,' and slightly longer but tightly coiled spirals known as 'frizzly' are not absent among aboriginal races of this country.

In the course of a survey of the primitive tribes living in the Annamalai Hills and its ranges which extend southwards in the Cochin and Travancore States in the winters of 1928 and 1929, the present writer, discovered among the Kadars and Pulyans remnants of a race possessing spirally curved hair.[4] In the majority of cases the hair was found to be similar to that of the Melanesians, consisting of long tightly coiled spirals, but there were also a few who possessed short spirals characteristic of the hair wrongfully called 'woolly'. The average stature of these people is very short (mean 1,516 mm.) and the skin colour dark chocolate brown approaching black. The nose is flat and broad and not unoften everted. It is true that the head shape of the Kadars in general is dolichocephalic but among the individuals with frizzly hair a marked tendency was noticed for a rise in the cephalic index to mesocephaly. The presence of two individuals with 77·34 and 79·29 as the values of their index, and the recent discovery of a brachycephalic individual with the so-called 'woolly' hair among the

[1] Hutton, J. H., 'Races of Further Asia,' *Man in India*, pp. 12-13, Vol. XII, No. 1, 1932.

[2] Risley, Sir Herbert, *People of India*, p. 5, 1915.

[3] Martin, Rudolf, *Lehrbuch der Anthropologie*, Vol. I, p. 214, 1928.

[4] Guha, B. S., *Nature*, 121, 793; 1928; 123, 942-43, 1929.

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aborigines of the Rajmahal Hills[1] would seem to indicate that the basis of the Negritos of India was probably mesocephalic if not brachycephalic like the Andamanese, but large admixture with a primitive longheaded race had affected the general shape of their head.[2] Somewhat similar conditions appear to have taken place among the Semangs of the Malay Peninsula who are mesocephalic, and it is noteworthy that the designs found in their bamboo combs are identical with those used by Kadar women.[3] We have no definite proof of the presence of spirally curved hair among other aboriginal tribes of southern India though reports of such occurrences among the Irulas[4] and the Wynaad tribes have recently been made. From somatometric and morphological evidences it seems highly probable that among a large section of the primitive tribes of South India, such as the Nattu Malayans, Yeruvas, etc. there has been a large admixture of Negrito blood[5] and it is not unlikely that many more instances of frizzly hair will be found in the extreme interior of these hills if carefully explored.

Outside the Rajmahal hills no instances of spirally curved hair have been reported so far from Upper India, but Hutton,[6] not long ago, drew attention to the presence of frizzly hair among a section of the Angami Nagas. This strengthens the supposition of its linkage with the Semangs of the Malay Peninsula already mentioned, and possibly also with the Andamanese who seem to have reached their present habitats from the same regions in very ancient times.

The Negrito substratum in the Indian population whose remnants are still found in isolated tracts would thus appear to have been much more widely spread originally but mostly submerged at the present time, and in all probability not unconnected with the Negritos of Malay Peninsula and of the Island of the Indian Ocean though the latter have preserved in their isolation the characteristic features of the race in a much purer form. Incidentally it may be mentioned that samples of the Kadar, Pulayan and frizzly hair from the Angami Nagas (sent by Hutton) showed that their cross-sections are oval like those of other Negrito tribes.

Besides the Negritos, the most important element in the aboriginal tribes of Southern and Central India is a dark short statured type with long head and broad flat nose. The stature is not so short as that of the Negritos but the skin colour is much the same, varying from tawny to dark chocolate brown. In the shape of the nose and the face there is no appreciable difference, there being the same tendency in the face to project forwards, and in both, the lips are thick and often everted. What distinguishes the latter, however, from the Negritos is the form of hair which in general is wavy and sometimes curly but never frizzly. Various opinions have been expressed regarding the true affinities of this race but when all the somatic traits are taken into consideration its kinship with the Australian race seems undoubted. It is true that the 'keel' so commonly found in the Australian skull is absent in it and the amount of facial and bodily hair is not like anything so profuse as among the typical Australian. In general also, though the supra-orbital regions are well marked the depth of the nasal root and the formation of the lower forehead are not so

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[1] Sarkar, S. S., *Nature*, 137, 1035 ; 1936.
[2] Guha, B. S., 'The Racial Affinities of the Peoples of India,' *Census of India*, Vol. I, Pt. III, pp. 1-li, 1935.
[3] Preuss, Dr. K. Jh., *Globus*, Vol. LXXV, pp. 345–348, 364–369, 1899.
[4] Hutton, J. H., *Census of India*, Vol. I, Pt. I, 1935.
[5] Guha, B. S., *loc. cit.*, pp. xlviii-xlix, 1935.
[6] Hutton, J. H., *Man in India*, Vol. VII, pp. 255–262, 1927.

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characteristic as among the Australian, though in an appreciable number the supra-orbital regions are equally stout and the nasal root shows the same sunkenness. In other characters, however, such as stature, form and proportions of the head, face, the nose and the skin colour, the resemblances to the Australian aborigines are very striking.

In a recent study of the anthropometry of the Australian tribes Dr. W. W. Howells [1] has discussed their affinities with the primitive races of Melanesia, Indonesia and Asia, and after a careful comparison of their physical characters has come to the conclusion that their closest correspondence is with the Veddahs of Ceylon. With the Indian tribes such as the Chenchus of Southern India, while in form and proportions the resemblance is strong, the absolute dimensions are somewhat larger in the Australians, specially the facial breadth. It is true that the face as a whole is much narrower among the Indian tribes but it is not uniform in the Australian tribes either, and in one at least, namely, the North Central Australians, the maximum breadth of the face was found by Spencer and Gillen to be 134·81 against 131·2 of the Kols,[2] 131·70±0·17 of the Mundas [3] and 132·07±0·4 of the Malpaharias.[4] When all the characters are considered there appears to be a regular gradation in these three racial groups—the Australians are the largest and show the characters in the most pronounced form, then come the Veddahs and lastly the Indian tribes. Except for their comparative smallness, the likeness between them is unmistakable and there cannot be any doubt of the existence of a genetic relationship between the three.

Sewell and the present writer [5], therefore, have thought it more appropriate to describe them as Proto-Australoid which suggests the presence of the chief somatic characters of this racial family in a less developed form, and there seems no justification for calling them 'Veddoid' when we consider, as shown by Howells,[6] that the resemblance of the Veddahs is much greater with the Australians than with any of the Indian tribes. Still more unfortunate is the use of such expressions as 'Pre-Dravidians', which if anything merely gives a chronological sequence to the unauthorized application of a linguistic term in the racial sense.

This Proto-Australoid type is the dominant element among the aborigines of Central and Southern India. We have no precise information of the earliest drift of this race in India, but in the ancient sites at Aditanallur in the Tinnevelley district of South India its remains have been found.

In the early Sanskrit literature also there are frequent mentions of a race of aborigines generically referred to as 'Nishads',[7] whom the Vedic settlers encountered in their expansion south-eastwards. The descriptions given of their physical characters leave no doubt that the Proto-Australoids were meant, with whose distinguishing features they appeared to be well acquainted.

Judging from their present distribution, the Proto-Australoid tribes appeared to have come later than the Negritos and pressed them gradually into the marginal and less hospitable parts in which their remnants still survive today, though in the process of this a great deal of their blood was gradually absorbed. There is no doubt that the Proto-Australoid elements

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[1] Howells, W. W., Papers of the Peabody Museum, Harvard University, Vol. XXVI, No. 1, pp. 59–67, 1937.
[2] Chatterjee, B. K., unpublished materials.
[3] Basu, P. C., *Trans. Bose Research Institute*, Vol. VIII, p. 224, 1933.
[4] Sarkar, S. S., *Trans. Bose Research Institute*, Vol. XI, p. 149, 1936.
[5] Guha, B. S., *An Outline of the Racial Ethnology of India*, p. 131, 1937.
[6] Howells, W. W., *loc. cit.*, p. 67.
[7] Chanda, Ramaprasad, *The Indo-Aryan Races*, pp. 4–6, 1916.

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is not confined to the aboriginal population only but has entered very considerably in the Indian population in general. Indications are not wanting also that even in the Sub-Himalayan and the north-eastern frontier countries where the Tibeto-Chinese speaking tribes are encountered at present there is an underlying substratum of this element in several places. But the chief racial constituents in these regions are essentially Mongoloid and conform to two distinct bio-types, namely a round-headed one which is tall and large bodied in the north, specially in Sikkim and Bhutan, where Tibetan infiltration has taken place, and short and small in the south-eastern parts of Bengal bordering on Burma. In the former sub-type the skin-colour is light brown and the eyes are slitlike with marked presence of the epicanthic fold. The nose though flat is narrow and long and both the head and the face are round. Like the body the head is massive and the absolute dimensions are greater than any other race living in this country. The other sub-type is darker in skin colour and much shorter in stature. The head is also round but smaller and the epicanthic fold is less marked. The nose is broader and shorter and there is not infrequently a tendency for the face to protrude forwards, though nothing like the extent found among the Negritos and the Proto-Australoid tribes.

Compared to the former also the vault of the head is lower and the face shorter. This sub-type is undoubtedly more primitive, and may appropriately be called Palae-Mongoloid. Though the main distribution of this sub-type is in Burma and the mountainous tracts adjoining that country, it has penetrated well into Assam and is not altogether absent in the Sub-Himalayan regions specially among the primitive races of these parts, like the Lepchas.

The second Mongoloid element is of medium stature with a skin-colour darker than that of the Tibetan but lighter than that of the Palae-Mongoloid. The characters of the eye, and the facial cast are essentially Mongoloid but the epicanthic fold is not so conspicuous as among the Tibetan group. Its chief distinguishing feature, is the form and shape of the head. The back of the head is neither flattened nor rounded as among the truly brachycephalic races, but bulges outwards. The breadth is also smaller and its proportion to the length is less. Though the actual values of the cephalic index often come within mesocephaly the essential long-headed character of the race cannot be doubted. This was recognized by Sir William Turner [1] as early as the beginning of this century and all subsequent studies have confirmed the conclusions reached by him regarding the headshape of the Assamese hill tribes, though no doubt the Palae-Mongoloid strain, which forms a constituent of their composition is responsible for a rise in the cephalic index noticed in many parts occupied by these tribes.

Compared to the tribes of Central and Southern India, the Mongoloid tribes of north-eastern India are more recent and are mainly concentrated in these parts, but it would not be wrong in stating that their influence has also penetrated into the main land of India as judged from the presence of undoubted Mongoloid features among many people. It is however true that this penetration is still mostly confined to the districts contiguous to their habitations and is not so deep and extensive as is the case with the Proto-Australoid race.

I have so far discussed the different racial elements in the Indian aboriginal tribes from the anthropometric standpoint. In recent years considerable advance has been made in the study of blood group distributions of various races. It is as yet too early to assess the full significance

[1] Turner, Sir William, *Trans. Roy. Soc. Edin.*, Vol. 39, pp. 700-749, 1905.

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of these studies, though the results so far obtained do not indicate any close correspondence between the results of anthropometric investigations and the blood group differences; but there is no doubt that these biochemical differences are determined by heredity and are of great value in investigations of racial differences. It would, however, be a mistake to regard them as supplanting the findings from morphological studies, but rather as supplementary to such works, for they provide important additional criteria.

In India, agglutinogen tests have been made on a few primitive groups, namely, the Paniyans of Wynaad,[1] the Illuvas of Cochin,[2] the Hill Malers, Santals and Oraons of Central India,[3] and small groups of the Nepalese and Lepchas of the Darjeeling district.[4] The data though small are very suggestive and indicate a clear divergence between the South Indian and Central Indian tribes. In the former there seems to be a marked preponderance of the blood group A—if these results are verified, the percentage among the Panyans being as high as 60·40. It is interesting that this is very similar to that of the Central Australian tribes among whom Cleland found the percentage of A to be 61·9.[5]

Among the Central Indian tribes on the other hand, the Santals and the Oraons[6] show a considerable preponderance of B over A, a feature that is also true of some of the depressed castes of Bengal,[7] e.g. the Badgis who show a blood group distribution closely parallel to that found among the Santals. The Hill Malers[8] show a slightly lesser preponderance of B over A than the first two as well as a high percentage of agglutinogen O. A plausible explanation may be found in the fact that the latter is Dravidian speaking and migrated from South India in comparatively recent historical times.[9]

Among the Mongoloid peoples of the Darjeeling district the proportions of the blood group frequencies are not quite similar to either of the last two but rather to those of the Chinese.[10] There is not the preponderance of B that is found among the Central Indian tribes, but the proportions of the three blood groups are about equal though they are closer to the North Indian conditions[11] than to those of Southern India.

These results are not contradictory to those obtained from anthropometric studies but tend to support the contention that the South Indian tribes appear to retain more the original conditions of the Proto-Australoid race in which there was a scarcity of agglutinogen B, as shown when comparisons are made with the Australian tribes. If, as some workers postulate, the mutation to B occurred in Central India, this happened after the present South Indian tribes had separated from their main stock in Central India. The lower frequency of B among the two Mongoloid races of the Darjeeling district is probably due to their isolation from the centre of mutation to B in Central India—they having received the agglutinogen B from a different centre of mutation in China where the mutation rate was

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1 Aiyappan, A., *Current Science*, pp. 493-94, 1936.
2 Macfarlane, E. W. E., *ibid.*, pp. 653-54, 1936.
3 Sarkar, S. S., *ibid.*, p. 283, 1938.
4 Macfarlane, E. W. E., *Man*, 159, 1937.
5 Cleland, J. B., *Science*, Vol. 77, pp. 260-61, 1933.
6 Sarkar, S. S., *loc. cit.*, p. 283, 1937.
7 Macfarlane, E. W. E., *Journal of Genetics*, 36, 2, 1938.
8 Sarkar, S. S. *loc. cit.*, p. 283, 1937.
9 Venkatachar, C. S., *Census of India*, XX, Part I, App. II, 267–79, 1931
10 Macfarlane, E. W. E., *loc. cit.*, 1937.
11 *Ibid.*, *Journal of Genetics*, 36, 2, 1938.

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apparently lower and from where it has spread west and southwards to Assam, Burma and the Himalayan regions.[1]

To conclude, we find four major strains in the aboriginal population of India, namely: (i) an underlying substratum of a primitive Negrito race which is found in comparative purity among the Andamanese and the Semangs of the Malay Peninsula but its wide presence at one time in the main land of India is indicated by the survival of small remnants in isolated tracts of different parts of India; (ii) a Proto-Australoid race having close affinities with the Veddahs and the aboriginal tribes of Australia which arrived subsequently and pushed back and absorbed the Negrito tribes and now forms the dominant element in the Central and South Indian tribes. These two constitute the chief racial elements in the primitive population of Central and South India with a share of Mongoloid admixture in the Orissan coasts going probably as far as Bastar, though the latter, i.e. the Mongoloid race, remains distinct from the two groups and is composed of (iii) a brachycephalic element divided into a more primitive short, and an advanced tall large bodied sub-types. These are found mostly in the Sub-Himalayan regions and Burma and are distinct from (iv) the medium statured dolichocephalic element which is chiefly distributed in the Assam hills mixed no doubt with the short statured Palae-Mongoloids.

Administration

It will have appeared from the foregoing descriptions that the primitive tribes of this country differ very greatly in language, culture and race. The solution of their administrative problems therefore can hardly be on a simple unitary basis. The machinery devised must take note not only of the divergences of their habits and customs but also of the psychological background and innate motives on which they are nourished. While details have to be worked out in each tribal area and in each tribe there are certain fundamental principles by which the administration should be guided. These are, first of all: (1) the preservation of *the basic structure of tribal life and authority;* and secondly (2) their participation and gradual integration in the general life of the country without the loss of their individuality.

The history of the civilized man's relation with primitive folks falls into two distinct phases, namely, an initial period of conquest and spoliation, followed by attempts to redeem to some extent the wrongs done and recognition of their right of existence and own mode of living. Wherever the primitive man first came into contact, in the New World, Oceania, Africa or South-East Asia, he suffered terribly in the hands of European immigrants and colonists, before whose superior arms and skill, his poison darts and boomerangs stood no chance, with the result that he was conquered and almost exterminated. To give only the most striking examples, the once proud and warlike Red Indian tribes of the U.S.A. living in Tipis and hunting the bison on their horse back, were reduced to one quarter of their total estimated strength. In Australia the fate of the aboriginal people was even worse, they were virtually wiped out of the southern temperate regions and were confined to a few straggling bands in the central waste lands and deserts. None however suffered so much as the native Tasmanians, who, from a population of 7,000 were reduced to 120 in 1764, and in 1876, the last representative of this ancient race passed away

[1] Macfarlane, E. W. E., 'Abstracts of Discussions,' *Proc. Ind. Sci. Cong., Calcutta*, p. 34, 1938.

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from this world leaving a sad commentary on the civilized man's solicitude for the aboriginal.

After the occupation of tribal territories and crushing of opposition, the relationship between the civilized and the aboriginal entered the second phase. It was felt that the primitive man did not receive a square deal and something had to be done to prevent the surviving members from dying out altogether. The Government of the U.S.A. was the first to initiate steps, followed by Australia and other countries. The policy considered most suitable was to segregate them in 'Sanctuaries' or Reservations where they would be free from exploitation and able to pursue their own method of living. The administration of these tribes were taken in hand by the Federal Government under a Commissioner, in the Bureau of Indian Affairs, in the Department of the Interior. As uplifting measures, Christian Missions were encouraged and vocational schools were established to teach them modern arts and crafts. Unfortunately the measures adopted for stopping exploitation were not very effective. During the period from 1887 to 1923 it was officially estimated that the Red Indians had been swindled out of 91 million acres of land,[1] and with the exception of the Navahos, who had increased from 11,868 to 22,304 the rest of the tribes had shown a rapid decline in population. Enquiries showed that in addition to economic exploitation the chief cause of depopulation was lack of adaptability and loss of a will to live.

Similar conditions were observed in Australia, Melanesia and Polynesia where the rate of decline in the native population was very high. Special commissions appointed by the Commonwealth Government, and investigations made by Dr. Rivers and other distinguished scientists on behalf of British Scientific Associations showed that the causes of depopulation were two-fold, namely, (1) Economic exploitation leading to the strangulation of primitive arts and crafts, and (2) Psychological apathy and want of a desire to shoulder the burdens of life. Of these, the latter was undoubtedly the most important and was the outcome of the disintegration of tribal culture and authority. Where contact with a higher culture takes the form of a clash and tribal pattern and values are too quickly replaced by others of a different order, the primitive man is unable to adopt himself to changing conditions and an upsetting of the harmony and balance of his life takes place. This disquieting feature reveals itself in significant change in the different birth rate with high masculinity. It was found that among all aboriginal tribes in Oceania and U.S.A. this was the danger signal marking the onset of decline in population.[2] A simple policy of segregation, while preserving the primitive man from exploitation, is a static remedy and at best a negative one and does not supply the machinery for enabling him to adjust himself to the changing conditions of his surrounding environment, and until this is done on the basis of his cultural potentiality and cultural accessories, no amount of spoon feeding or uplifting measures are likely to be effective. This was well realized in U.S.A., and in 1933 John Collier, who as Executive Secretary of the American Indian Defence Association had waged a vigorous fight for the Red Indians, became the Commissioner of Indian Affairs and succeeded in getting his Reorganization Act adopted by the Congress in 1934, which gave the Red Indians their tribal holdings and the right to extend them, but also by a majority vote, each reservation could incorporate its business affairs under federal charter and secure a constitution. Collier's

[1] *Times*, Vol. XL, February 19, 1945, pp. 8-9.
[2] Rivers, *Clash of Contact and Culture*, p. 267.

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policy has thus marked a departure from the prevailing practice of isolation and paved the way for the eventual integration of the Red Indian tribes in the general population of the country.

In India, references of early contact with aboriginal tribes are found all over the Sanskrit literature when clashes with the 'Aryan' invaders frequently occurred. The ancient Tamil books also write of similar clashes in the beginning of the Christian era.[1] No wholesale extermination, however, took place but part of them was driven out to the forests and hills and part absorbed, although forming the bottom layer of the Hindu social system. The wilder section of the tribes, though living outside the limits of 'Aryan' occupation, was not uninfluenced by Hindu thoughts and ideas though in the main their tribal integrity was undisturbed.

With the British occupation and rapid opening up of the country, however, they soon came under its notice when punitive measures had to be undertaken against their raids on the British subjects living in the plains. Beginning with the Mal Paharias under Warren Hastings in 1772 who were brought under control by Augustus Cleveland between 1778–84,[2] the primitive tribes were pacified one by one until the majority of the tribal population of Chota Nagpur, Central and Southern India and those of the Chittagong Hill Tracts and Assam were brought under British control.

The occupation of tribal territories brought in need of many problems of administration, as tribal lands began slowly to pass into the hands of landlords and moneylenders of the plains and disaffection began to manifest itself in tribal uprisings as a result of enforcement of laws unsuited to their conditions and even contrary to the spirit of their customs and religion. The Mal Paharia raids of 1772 showed the necessity for the first time of the system of indirect rule and the Rajmahal Hills, later on termed Daman-i-koh, was withdrawn in 1796 from the jurisdiction of ordinary courts of law and placed under a tribal council known as 'Hill Assembly'. The understanding and sympathy shown by Cleveland, the responsibility given to the tribal chief and their council was extremely successful, but it was an individual success and fell to pieces after his death. The mutinies of the Hos of Singhbhum in 1831, the Khond uprising in 1846, and the Santal rebellion of 1855, made it necessary to form these regions into specially constituted Non-Regulation Tracts to be administered by simpler codes directly by Deputy Commissioners in a manner suitable to the backward people of these tracts for whom the complicated machinery of civilized laws was unsuited. In the Madras Presidency, a similar system was introduced by the Act XXIV of 1839, whereby civil and criminal jurisdiction of the Ganjam, Vizagapatam and the Godavari Hill tracts was vested in an agent and his staff. In Bombay, the tribal area of the Mewasi estates in West Khandesh was excluded by Act XI of 1846 and special rules were framed for the administration of these estates.

Similarly in Assam, the first contact with the hill tribes began with an expedition sent against the Jaintia State in 1774, but not until the murder of a Survey Party by the people of Nongkhlaw in 1829, did the British Government seriously attempt the subjugation of the Khasi Hills, which was completed in 1833 after the Confederacy of the Khasi Chiefs was successfully defeated. In 1854, North Cachar was annexed. Several expeditions had to be sent to the Chin-Lushai Hills between 1850–1890 when the Lushai Hill was taken under the British administration. The Naga Hills were

[1] Kanakasabhai, V., *op. cit.*, p. 65.
[2] Hutton, J. H., *Primitive Tribes in Modern India and the West*, pp. 414 [illegible], London, 1941.

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brought under control in 1878, with Kohima as the capital, and finally the Abor Expedition of 1912 established British influence over this section, although several subsequent military columns had to be sent to the tribal territories specially the unadministered Nagas for raids on British subjects, the last one being in 1936.

In order to co-ordinate and make the administration of the primitive tribes more uniform, the Scheduled Districts Act was passed in 1874 by the Indian Legislature which specified tribal areas all over the country into 'Scheduled Tracts'. In spite of these special arrangements, however, alienation of land, rack-renting, bonded-service, etc. continued and various tenancy Acts and legislative measures were necessary to prevent the transfer of tribal holdings, control of usury, stoppage of agrestic serfdom, etc. Even then the aboriginal population suffered great disabilities from the enforcement of ill-conceived forest and game laws and interference with tribal festivals on 'moral' grounds, or in the practise of Excise Regulations which substituted 'Outstill' or 'Central Distillery', but did not permit private brewing practised by the tribes. The result was, as pointed out by Dr. Verrier Elwin, a great increase in drunkenness which augmented Excise revenues and profited contractors and wine merchants at the expense of the inarticulate aboriginals.

The second stage in the administration of the primitive tribes entered with the passing of the Government of India Act of 1919, when the tribal areas were reconstituted under Section 52-A of that Act into backward tracts after removing them either wholly or partially from the jurisdiction of the Indian ministers. Altogether 19 areas were so classified of which 4 were entirely beyond the pale of the legislatures.

With respect to the others the legislatures were empowered to pass laws but their operation was dependent on the decision of the Governor-General, or Governor in Council.

In the Government of India Act of 1935 more stringent provision for special treatment of tribal areas was incorporated by converting the backward tracts into areas of Total and Partial Exclusion. In the Sixth Schedule of the Act 4, areas under the first head and 11 under the second were at first proposed. As finally passed by the Parliament, on the amendment moved by Mr. Cadogan, 4 more were added on to the first and 9 to the second. It is to be noted that the Waziris of Spite and Lahoul, and Upper Tanwal in the Hazara district, which came under the excluded areas are not backward tracts. Their inclusion was due solely to politico-administrative reasons other than solicitude for their inhabitants. Contrariwise, although the avowed purpose of the Schedule was protection of the aboriginal people from exploitation, and 'freedom to pursue their traditional method of living', the tribes that needed protection most such as the Andamanese, the Kadars, the Pulayans of the Annamalai Hills and the forest tribes of the Wynaad were not considered important to be included in the scheme. Nor were the Todas of the Nilgiris, who are among the tribes in India which are steadily declining in population. The total area covered by the Act for special treatment excepting Upper Tanawal was 126,576 sq. miles, of which 28,134 sq. miles consisted of the entirely excluded and 98,442 sq. miles for the partially excluded portions. The population that received the special treatment was 639,632 for the excluded, and 7,438,368 for the partially excluded areas, making a total of 8,078,000, or about one third that of the entire strength of the aboriginal population in British India.

A review of the working of the special constitutional measures taken for the protection of the tribal population shows that the purpose behind

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them has not succeeded. Neither has the economic exploitation been checked, as judged from the reports of Messrs. Symington[1] and Grigson[2] in Bombay and C.P., and of Dr. Verrier Elwin[3] in Orissa; nor is there any tangible evidence of increase in the adaptability of the tribes to changing conditions. The steady addition to the number of specially reserved areas with each succeeding constitutional change, if anything, points to the other way.

These factors as well as experiences of tribal administration in other parts of the world make it abundantly clear that there is no alternative but to revise the whole policy underlying the special Measures Acts as has been done now in U.S.A. under the Collier Re-organization Act of 1935, and the orientation given by the U.S.S.R. with regard to the administration of primitive tribes in East Siberia. In Australia and South Africa the existence of a white racial doctrine renders assimilation of aboriginal tribes impossible, but in India where they constitute nearly 5 millions spread throughout the country, and with whom, in some form or other, there has been contact since the earliest times with considerable acculturation on both sides, and even a great deal of mixing of blood, such however cannot be the case. *Besides, complete isolation has never led to progress and advancement, but always to stagnation and death whether we look to lower animals or human beings.* In every part of the world such has been the case, as the aborigines of Melanesia and Australia amply demonstrate; and if other instances are necessary there can be a no more convincing case than the fate of the Aryan speaking Kati and Khalash tribes of Chitral. As judged by their archaic forms of languages and institutions still surviving, (or at least very recently), they were probably a remnant of the same or collateral wave of 'Aryan' immigration which moved into India and gave us our civilization, but shut up in the inaccessible mountain valleys of the Hindukush and completely isolated from outside, though retaining a great deal of their original physical type of tall finely cut features, fair skin colour and some amount of light eyes and hair, are today extremely backward and even primitive.

On the other hand, the history of human society shows that civilization everywhere has been built by the contact and intercourse of peoples which has been the chief motivating power behind progress. There are innumerable instances of the borrowing of cultural traits by peoples of different countries, such as articles of food, use of metals, domesticated animals, methods of agriculture, spread of the alphabet, etc. So long as the borrowing has been natural and in harmony with the cultural setting and the psychological make up of the people, it has entirely been beneficial and even added to the richness of the culture. An instance may be cited. The hill tribes of Assam from times immemorial tilled their soil with the digging stick and hoe and never learnt the plough cultivation from the people of the plains. As soon, however, as 'terraced' cultivation was introduced, it not only suited the hilly nature of the country, but terracing was also found easy with the implements they were accustomed to and was therefore adopted very widely all over the hills. Similarly in those cases where a blending of cultures has followed from interaction of races, or where a transformation of one culture by another was voluntarily effected

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[1] Symington, D., Report on the Aboriginal and Hill Tribes of the Partially Excluded Areas in the Province of Bombay.

[2] Grigson, W. V., *The Aboriginal Problem in the Central Provinces and Berar*, 1944.

[3] Elwin, V., Report of a Tour in Bonai, Keonjhar and Pal Lahara States, 1942.

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it has enriched humanity. The efflorescence of Greek civilization was due to the blending of the Hellenic culture with the Cretan, and as is well known, Japan transformed her culture in the seventh century by sending a mission to China and incorporating 8 out of the 11 main features of the Chinese civilization.[1]

When, however, contact has resulted not in peaceful and willing borrowing, but in conflict and upsetting of tribal life, the effects have been otherwise, as the tragic histories of the aboriginal peoples of Australia, Melanesia and U.S.A., have shown and referred to already. It follows, therefore, that just as isolation is not the ultimate solution of the aboriginal problem, neither is indiscriminate and unregulated contact; and in devising a suitable machinery for the administration of the tribal population of this country, both these factors will have to be taken into consideration. We have to profit from the lessons of other countries and see that we do not repeat their mistakes, so that disintegration of tribal culture and life leading to decay and depopulation does not ensue also in this country.

The security of the tribal life has first to be safeguarded and its continuity maintained by protecting it, (i) from exploitation, both political and commercial, and (ii) against undue interference by well-intentioned missionaries and reformers not sufficiently informed on tribal customs.

Under the first head belong all those laws and regulations whose enforcement was regarded necessary with the gradual extension of political control over the aboriginal territories. But, as these were framed not with reference to special needs of the tribal population, their strict application was unsuitable and caused severe hardship on primitive races. Living as they mostly do in forests, subsisting on its produce and the spoils of the chase, Forest Regulations, Excise and Game Laws, have brought in restrictions and prohibitions to which they were not accustomed, and some of which were even against their customs. For instance, the Forest Laws have taken away the right of disposal of unclassed state forests which are no longer considered as common property of the tribe, and such methods of cultivation as Jhuming or Bewar are disallowed in most parts of India. The Excise and Game Laws in operation do not permit them to distill liquor in their houses necessary for household consumption and religious offerings or to kill game for sacrificial purposes during the close season.

These have not only produced evasions and subterfuges as the tribal people have never been able to understand their necessity, but in limiting their activities, have narrowed down the outflow of their primitive energies for which no substitute has been forthcoming. Even in such personal affairs as marriage, a Bhil or a Gond does not find himself free to do so according to his tribal custom of 'marriage by capture' for then he is liable to be punished for abduction. In these and other matters the primitive man has suffered for the unsuitability of the laws and also for the ignorance of tribal customs and life on the part of the trying Judges. The late Rai Bahadur Sarat Chandra Ray, the well known anthropologist, was so deeply moved when he first came to practise as a lawyer at Ranchi, at the hardships suffered by the Munda tribes of Chota Nagpur, that he decided as a preliminary to redressing their grievances to learn their languages and institutions.

The effects of commercial intercourse have not either been innocuous. Merchants who came to trade in tribal territories did not do so for the love of the primitive people, but solely for making money. Profiting by

[1] Dixon, R. B., *The Building up of Culture*, pp. 164-5, 1928.

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the innocence and simplicity of the people, they have succeeded in alienating large portions of their lands by more foul means than fair, and caused the ruin of primitive crafts and industries by selling cheap and inferior foreign products. The use of opium and arrack among many tribes, such as the Kadars, were taught by petty contractors who came to buy the forest produce and in their wake have also come diseases like tuberculosis and syphilis, against which the primitive folks did not have any immunity. Such practices as prostitution, have in no small measure been due to them, and other riff-raffs, who came in large numbers as a result of improved communications, by luring the simple aboriginal girl unable to distinguish between their own easy going sexual freedom and a life of organized vice.

The results of missionary and educative activities have been more subtle and affected the psychology of the people more than their outward observances, for even when certain changes in them were attempted, it was not so much for the objects themselves, as for the mental attitude they implied. The customs and religious rites of primitive races are very closely integrated and deeply rooted in certain beliefs such as *Soul-Matter* or the supernatural powers of the *Mana*, and cannot be uprooted without disturbing the whole foundations of their life. Even such practices as head-hunting are not merely cruel savage rites but are in reality fertility cults, and intimately associated with their agriculture. These are also the media through which manly virility and physical prowess were encouraged, and as shown by Mills not more than two or three persons were thus annually killed in any village in the Naga hills. Buffalo hunting, therefore, as suggested by some missionaries is no substitute, as buffalo heads do not possess the Soul-Matter. Similarly the introduction of tea can never take the place of the primitive men's alcoholic beverage, either in nutrition or in its 'kick,' and can only teach him dishonesty and secret drinking. Lastly, the suppression of the annual feasts and dances during which undoubtedly some sexual license is permitted, not only discourages their artistic outlet when special dresses and ornaments are worn, but also takes away much of the gaiety and joy of primitive life. As investigations into the cause of depopulation of aboriginal races in Melanesia, Polynesia and Africa by distinguished scientists like Rivers, Elsdon Best and Pitt Rivers have shown, *it is the want of interest in life and mental apathy, which is, more than any other cause, responsible for the disintegration of primitive people.* It is a dangerous pastime to try to save the primitive soul by alien methods and religion, for, in such attempts, more often, than not, the primitive man himself disappears. Good intentions are not enough, they have to be tempered with understanding and knowledge. The uplifting of the aborigines by emasculation can never compensate for a vigorous tribal life even though it is based on different moral and religious standards from those of the civilized man.

These and other matters to which the tribes have customary rights should be amply safeguarded in the Indian constitution, and to allay suspicion and win the goodwill and confidence of the tribal population it may be necessary to incorporate in the preamble of the Constitution, Articles 73 and 74 of the San Francisco Charter of the U.N.O., of which the clauses (*a*) and (*b*) provide for the protection and just treatment of undeveloped minorities, respect for their culture and progressive development of their political, economic, social and educational conditions, if it is not found inconsistent with the status of India as an independent country to do so. It must, however, be remembered that safeguards, no matter how carefully drawn up, can never be adequate unless it is founded on the goodwill of the people.

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In the proposals that have so far been made for the administration of primitive tribes of this country by persons whose administrative experience and genuine love for the aborigines cannot be questioned, such as Hutton and Grigson, or by scholars of the position of Verrier Elwin, or by men like Thakkar Bapa who have chosen a life of dedication in their service, sufficient importance has not been given to evolving a suitable machinery for facilitating tribal adjustments to changing conditions and of their gradual integration in the general life of the country. In my opinion this is, as much important as non-interference in tribal life, and there must be provisions along with the others, by which the primitive population can gradually fit themselves to the changing conditions around them.

In U.S.A. and Canada the administration of aboriginal tribes is directly under the Federal Government, and Mr. Curtin has recently made similar proposals for Australia. Such an arrangement would have been ideal for this country also, as this would have permitted a uniform policy for tribal administration, and the financial commitments could have been shouldered by the Central Government; but in view of the shape that the constitution of India is likely to take, the situation of the tribal areas *vis-à-vis* the states, a more realistic approach will assuredly have to be taken. The U.S.S.R. has evolved a system with regard to the government of her primitive races which seems applicable to India, with changes. It has divided them into several 'autonomous regions' under larger 'autonomous republics', and the grouping of the tribes has been made on linguistic and cultural lines. The Buriat-Mongolian Republic of Eastern Siberia, for instance, contains the 'autonomous republics' of the Chuckchis, Yukhagirs and other Palae-Siberian races, each of which again is sub-divided into several 'autonomous regions' according to the linguistic and cultural sub-divisions of the tribe. On similar lines the Indian tribes may be divided into several autonomous areas under larger autonomous provinces and states. Unfortunately, the tribal and state boundaries do not always coincide, and I am against the breaking up of tribal integrity. Ways and means will have to be found by which certain adjustments of provincial and state boundaries can be made. Proposals have been made to separate[1] the tribal areas in N.E. India from the existing province of Assam into one single tribal territory, taking into it the unadministered region of Burma, to be administered either directly under the Central Government or by some special arrangements, e.g., under a Mandate Commission from the U.N.O., on the assumption that these tribal areas racially and culturally have nothing in common with the rest of India. The proposal is not feasible either from the practical or the political points of view of the country, and the assumption at its back is not anthropologically sound. India is not ethnically a homogeneous country but with several racial and cultural spheres in different parts. It is true that the Assam tribes are not similar, say, to the inhabitants of Rajputana or the Punjab, but if they are compared with their neighbours, the people of Assam, it will be found that for centuries past there has been constant cultural interchange and even some admixture of blood, with the result that today Assamese language is understood to some extent and forms the medium of communication between the tribes themselves, who, it must be remembered again, are not of one race, language or culture but of many; and on that ground alone they could hardly be collected under one political system, distinct and separate from Assam. What would, perhaps, be a more practical

[1] Reid, R., *op. cit.* and J. P. Mills.

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scheme is to have, within the self-governing province of Assam, a tribal sub-territory divided into three separate units, viz. (1) of the tribes living on the central massif, (2) tribes living in the hinterland between Assam and Tibet, now under the Balipara and Sadiya Frontier tracts, and (3) the Naga-Kuki Lushai tribes on Assam's eastern frontier, with, if possible, the trans-frontier Naga country between Namphuk Hka and the western part of Hukuwang valley. There will then be, linguistically and ethnically, closer bodies and autonomous units, grouped first of all into a larger tribal sub-territory under the province of Assam, with whom geographically and culturally they are intimately bound.

Similar arrangement can be made with the tribal territory in eastern borders of Bengal to form an autonomous tribal sub-province under Bengal. In Orissa, Bihar, Central India, Bombay and Madras, the same procedure may be followed by separating the tribal parts into one or more units as suited to local conditions, and either grouped under a larger tribal body when there are several contiguous tribes to form the tribal part or territory of the provinces or states.

Mention was made of the existence of indigenous systems of Government, within almost every tribe, rudimentary in the more primitive ones, consisting of village headmen and councils or Panchayats, but in the larger and more advanced tribes like the Santals, of representative councils for the whole tribe; and in the case of the Khasis, of elected chiefs or Siems and a complete machinery of Government. These existing institutions should be utilized and developed to form the nucleus of Government of the tribes by their own chosen representatives and in their own interests. Councils within each tribe should send representatives to the larger tribal council and these in their turn should elect persons to go into the provincial council.

Other tribes are scattered in small groups in different parts of the country and are too small for forming autonomous units. They may, wherever possible, form separate and distinct portions or tracts of the districts and administered under tribal councils and within the political machinery of the state.

The idea behind this arrangement is to administer by means of the indigenous machinery available within the tribe, in accordance with the traditions, customs and psychology of the people, but providing avenues for their participation in the larger life of the community in general and the country. Such an arrangement will enable speedier adjustment of tribal life to changing conditions without causing disruption.

The success of the scheme will, however, depend *first of all* on the provision of adequate funds either by the Central Government as subvention, or from the Provincial exchequer; for sanitation, health, development of tribal arts and crafts and education on strictly vocational and practical lines and through the media of tribal languages, though the common provincial language, whatever it be, should be taught as the second language which will be the means of communication with extra-tribal and wider life of the province. For this purpose the best method will be to utilize the existing training centres of the tribes such as the Dhumkaria, the Moshup, Morung and the Ghotul, which have trained the village youths in tribal traditions and life throughout the ages. The spirit of co-operation and discipline fostered in them would be of immense value in the training of the tribal youths. And *secondly* on reliable and exhaustive information on the life and institutions of the tribes. Without a thorough knowledge not only of their customs and rites but also of their psychological potentialities and biological constitution, no suitable arrangement for their

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education or economic and social development can take place. A great deal, behind exploitation and tribal unrest in the past, had been due undoubtedly to ignorance of tribal life and consequent inability to appreciate and understand the primitive mind.

A Central Institution devoted to the survey and study of aboriginal life in both the biological and social spheres and the effect of culture contact on primitive tribes is an urgent desideratum. A programme of research can be planned covering a period of 25 years for the initial stage, and investigations on systematic lines giving priority to the urgent problems, undertaken. The Provincial Governments may utilize its services by giving their special problems for investigations, besides taking full advantage of the materials that it will have brought out on the material and cultural life of the tribes, for evolving its system of education and welfare measures that may be under the consideration of the Provincial Government for application on primitive areas. Either the Director and other officers of the Institute should serve as Government Advisers on primitive life and allied problems or preferably a separate Statutory Advisory Board on aboriginal inhabitants should be set up, with functions purely advisory.

Finally, just as it should be the endeavour of the more progressive and advanced sections of the country to appreciate the tribal point of view and their interests, the tribes should also slowly be made to understand the wider interests of the province and the country into which their lots have been cast, and feel that their welfare is not antagonistic but dependent on the safety and progress of the whole country. There are, (1) strategic considerations from the point of view of the defence of the country, such as for example, the trade routes on the Tibetan borders, like the Tawang and Rima routes, and mountain gaps like the Ledo, Tuzu and the An and Taungup passes on the north-eastern frontiers. Defence of these places will entail some undoubted hardship on the tribal people and some amount of dislocation of their life will also ensue, but this cannot be avoided in the wider interests of the country and the tribes should be made to realize it, (2) finding of rich mineral deposits like oil, coal and metal ores in tribal territory which the tribes will be unable to develop, but will have to be worked out by others. Arrangements by the Provincial and Central Governments should be made to develop these resources in a manner doing the least possible harm to the tribal life, and part of the income should go to the tribes which can be used for development schemes for their benefit.

The essential thing is to realize that the tribal and general population are inhabitants of the same country and their interests are closely interwoven for good or bad. The fostering of the growth of a common outlook and common interest should be the ideal for which both should strive. The administration of primitive tribes should be so planned that this purpose is served by developing them on their own models and thought, but also gradually bringing them up as full and integral members of the country and participating like the rest in her joys and sorrows.

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Plate 1.

Fig. 1—Onges of Little Andamans carrying children.
Fig. 2—Raja—the Onge Chief.
Fig. 3—Kadar with frizzly hair from Perambiculam (Cochin Hills, South India).
Fig. 4—A Bhil of Central India.
Fig. 5—A Malayan of Cochin.
Fig. 6—A Chenchu boy of Farhabad Hills (Hyderabad) shooting arrows.

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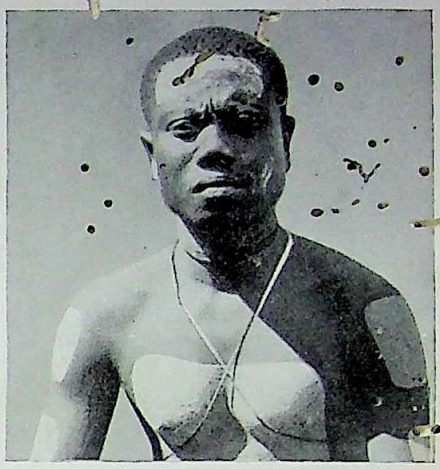

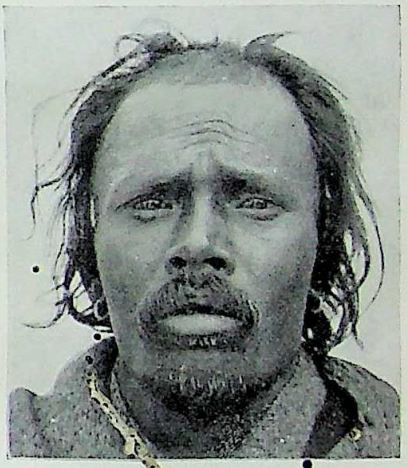

FIG. 1. FIG. 2.
FIG. 3. FIG. 4.
FIG. 5. FIG. 6.

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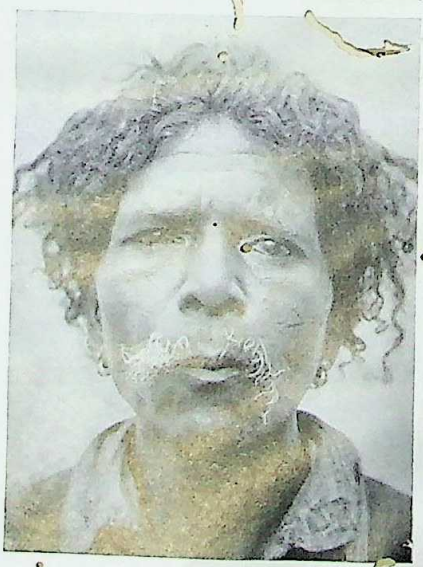

FIG. 1.
FIG. 2.
FIG. 3.
FIG. 4.

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Plate 2.

Fig. 1—A Kadar of Perambiculam has his teeth filed.
Fig. 2—A group of Malayan girls of Cochin (S. India).
Fig. 3—A Muria young girl of Abjuhmar Hills (Bastar).
Fig. 4—An Irula of Wynaad.

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Plate 3.

Fig. 1—A Bhutanese of Sikkim.
Fig. 2—A Lepcha woman of Pedong (Darjeeling Dist.).
Fig. 3—An Angami Naga girl of Kohima.
Fig. 4—A group of Angami Nagas of Kohima.
Fig. 5—The Abor Headman of Bordak.

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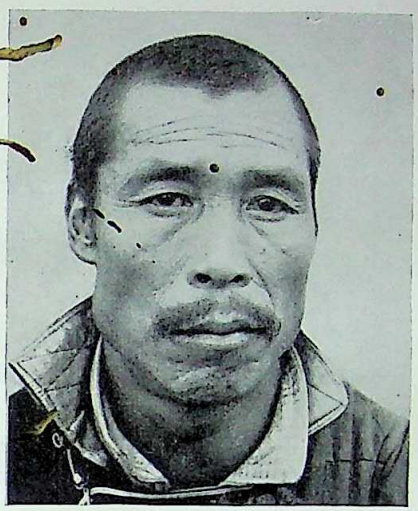

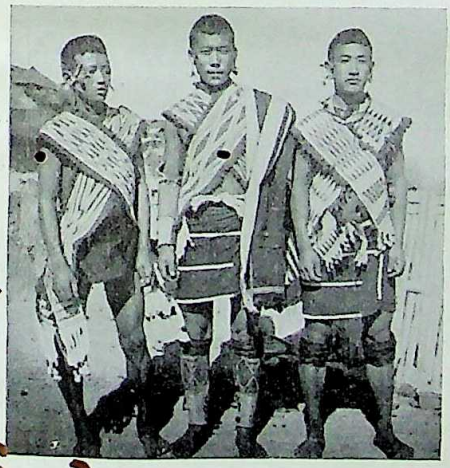

FIG. 1. FIG. 2.

FIG. 3.

FIG. 4. FIG. 5.

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FIG. 1.

FIG. 2.

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Plate 4.

Fig. 1—An Abor *Miri* leading a dance at Aiyeng.
Fig. 2—Khasi dance in the Mylliem State.

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DIFFERENCE IN CONCRETE INTELLIGENCE AMONG THE JAUNSARIES

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(Communicated by Dr. B. S. Guha, F.R.A.S.B.)

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Abstract

An attempt has been made in this paper (1) to find out the differences, if any, in concrete intelligence as revealed from the application of Performance tests on Rajputs, Brahmins and 'Others' of lower castes, belonging to the Jaunsaries, inhabiting the mountain region of the Himalayas between Simla and Mussoorie, and (2) to measure and analyse these differences.

Tests administered were Passalong, Dearborn, Cube Construction and Block Design.

Interesting facts have been revealed from the data obtained regarding the mental behaviour when placed in different situations.

Introduction

The Department of Anthropology started a systematic survey of the people of Jaunsar Bowar in 1947. The programme included application of psychological tests on children, women and men. In the first plan of an investigation, Lower Jaunsar in the mountainous area between Kalsi to Lakhwar in Dehra Dun district, U.P., was covered. The subsequent parts of the survey will include Bower and the states of Jubbol and Sirmor. Jaunsar lies in the district of Dehra-Dun and consists of Chakrata and the southern portion of the Hill Paragana of Jaunsar Bowar which is bounded roughly by the Jumna river on the east, the Tons on the north and west and the Dun on the south.

In this part, the results of the investigation among the children in Lower Jaunsar are discussed. Psychological tests were taken from the months of May to July and included four Performance tests of concrete intelligence or practical ability, two tests of manual dexterity, one test of recognition and one of reaction time. The tests in manual dexterity, recognition and reaction time will be discussed in a subsequent paper. This report is confined to some findings with respect to the concrete intelligence of the hill people of the region known as Jaunsaries.

Tests

The following tests were administered: The Passalong test as administered by Alexander (1), the Formboard test by Dearborn (2) and the Block Design and Cube Construction administered by Collins and Drever (3).

An attempt has been made in this paper to find out, whether there is any difference in concrete intelligence among the different groups of Jaunsari population.

The testees were all primary school students. They were tested individually and a recess of ten minutes was allowed after completion of

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each test. Instructions were given in Hindi as the boys understood the language. All attempts were made to establish 'rapport' with the examinee in order to make the subject familiar with the objects around him. They were classified in three groups—Brahmins, Rajputs, and 'others,' the last comprising all lower castes such as Koltas, Bajgis, Sunars, Dewars and Naies.

Data and Discussions

Tests were given to boys in four primary schools, each at Kalsi, Thanagao, Nagao and Nagthath. The schools were run by the District Board and they were situated at fairly long distance. Twelve boys including one Brahmin, ten Rajputs and one Kolta were examined at Kalsi which is thirty-two miles north-west of Dehra-Dun towards Chakrata. Fifteen boys comprising seven Brahmins, five Rajputs and three Sunars were tested at Thanagao, three miles south of Chakrata and twenty-four miles north of Kalsi. At Nagao, which is situated at a distance of six miles south of Thanagao, the sample contained one Brahmin, ten Rajputs and one 'other'. Lastly, at Nagthath, fifteen miles south of Nagao, tests were conducted on twenty-four boys, consisting of two Brahmins, sixteen Rajputs and six 'others'. Seventy-one boys between eight to sixteen years of age took part in the test. There were nineteen Brahmins, forty-one Rajputs and eleven 'others'.

The raw scores of the groups have been given in Appendices A, B and C. Before discussing the results it will be necessary to ascertain whether the tests are valid for the groups concerned. The Passalong, Cube Construction and Block Design tests, the combination of which is known as Alexander's Performance Scale, are well standardized (4) and measure the same ability (5), that is, concrete intelligence. We have added the Dearborn test to the above scale. We shall see presently whether this inclusion is justified or not. It is well known that the tests of the same general function are considered valid, if each of the tests shows high correlation with the combined scores of all (6). The following values of the correlation of coefficient of each test with the combined scores are calculated by using Pearson's Product Moment Method.

Combined scores of all 4 tests with	Passalong	$0{\cdot}74 \pm 0{\cdot}05$
	Dearborn	$0{\cdot}81 \pm 0{\cdot}04$
	Cube Construction	$0{\cdot}75 \pm 0{\cdot}05$
	Block Design	$0{\cdot}79 \pm 0{\cdot}04$

The figures range between 0·74 and 0·81. According to our criterion, therefore, all the tests may be combined to form a scale and they are valid for the groups concerned.

Mean, standard deviations and coefficients of variation with corresponding standard errors for the performance test scores are shown in Table I.

Table I shows that the average age of the three groups tested are more or less equal and near about 11. So the influence of age on the scores is negligible. It is evident from this table that out of four tests, Brahmins show best performance in the Passalong and Block Design tests for the average scores of the Brahmins, Rajputs and 'others' are 21·21, 19·63 and 15·09 in the Passalong test and 14·89, 11·66 and 8·18 in the Block Design test. Superiority of Rajputs over other two groups is observed in the Dearborn and Cube Construction tests for the average scores made by the Brahmins, Rajputs and 'others' are 13·11, 15·83 and 14·18 in the Dearborn test and 6·79, 8·29 and 6·82 in the Cube Construction test. It is also observed that Brahmins and others are nearly equal in their performance in the Cube

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TABLE I

Statistical Results of the Performance Test Scores

Tests	Groups	No. of Individuals	Average Age	Statistical Constants		
				Mean with S.E.	Standard Deviation with S.E.	Coefficient of variation with S.E.
Passalong	Brahmins	19	11·47	21·21 ± 1·55	6·76 ± 1·10	31·87 ± 5·17
	Rajputs	41	11·32	19·63 ± 1·05	6·74 ± 0·74	34·34 ± 3·79
	'Others'	11	11·00	15·09 ± 1·99	6·59 ± 1·41	43·67 ± 9·31
Dearborn	Brahmins	19	11·47	13·11 ± 1·18	5·16 ± 0·84	39·36 ± 6·39
	Rajputs	41	11·32	15·83 ± 0·92	5·90 ± 0·65	37·27 ± 4·11
	'Others'	11	11·00	14·18 ± 2·14	7·08 ± 1·51	49·93 ± 10·65
Cube-Construction	Brahmins	19	11·47	6·79 ± 0·53	2·32 ± 0·38	34·17 ± 5·55
	Rajputs	41	11·32	8·39 ± 0·61	3·88 ± 0·43	46·25 ± 5·10
	'Others'	11	11·00	6·82 ± 1·01	3·34 ± 0·71	48·97 ± 10·44
Block Design	Brahmins	19	11·47	14·89 ± 1·88	8·18 ± 1·33	54·94 ± 8·92
	Rajputs	41	11·32	11·66 ± 1·40	8·93 ± 0·99	76·59 ± 8·45
	'Others'	11	11·00	8·18 ± 1·66	5·51 ± 1·17	67·36 ± 14·36

Construction test, average scores being 6·79 and 6·82, whereas in the Dearborn test-performance 'others' (14·18) are superior to Brahmins (13·11).

We cannot draw any conclusion unless the above differences in mean values and combined score comparisons are significant.

In order to see whether the differences are significant, the three groups are compared among themselves in all the four tests separately and combined.

Table II shows the comparison among the three groups in performance tests scores. For testing the significance of the differences between the means at 5% level of probability. Fisher's t (7) is used since the samples considered are of small sizes. It is observed from Table II that in the Passalong and Block Design tests, the difference of mean values are 6·12 and 6·71 and the value of t is 2·41, between Brahmins and 'others' favouring Brahmins. The difference between Brahmins and 'others' is found to be satistically significant at 5% level of probability, that is, Brahmins are superior to 'others' in concrete intelligence. Comparison between Brahmins and Rajputs and Rajputs and 'others' in the Passalong and Block Design tests and between all the groups in the Dearborn and Cube Construction tests yields no statistical difference and the differences of mean values are not generally well marked.

We cannot accept the superiority of Brahmins over 'others,' unless the combined scores comparisons are significant, for a battery as a whole has a higher validity than any one test taken alone (8). So the groups are compared with respect to the combined scores.

The scores in four tests for each individual are combined by giving proper weightage to each test according to variability (9). Table II shows that the mean of the combined scores of Brahmins is 156·06, of Rajputs 161·8 and of 'others' 130·73. The difference of mean values between Brahmins and Rajputs is 5·76, between Brahmins and 'others' 25·75 and between Rajputs and 'others' 31·11. The best performance is shown by Rajputs and next in order the Brahmins and 'others.' *However, it is evident from the value of 't' that the differences among the groups are not significant.*

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TABLE II

Comparison among the Groups

Tests	Between Groups	Means	Standard Deviations	Difference	't'
Passalong	Brahmins	21·21	6·76	1·58	0·84
	Rajputs	19·63	6·74		
	Brahmins	21·21	6·76	6·12	2·41 *
	'Others'	15·09	6·59		
	Rajputs	19·63	6·74	4·54	1·99
	'Others'	15·09	6·59		
Dearborn	Brahmins	13·11	5·16	2·72	1·72
	Rajputs	15·83	5·90		
	Brahmins	13·11	6·16	1·07	0·48
	'Others'	14·18	7·08		
	Rajputs	15·83	5·90	1·65	0·79
	'Others'	14·18	7·08		
Cube Construction	Brahmins	6·79	2·32	1·60	1·66
	Rajputs	8·39	3·88		
	Brahmins	6·79	2·32	0·03	0·03
	'Others'	6·82	3·34		
	Rajputs	8·39	3·88	1·57	1·22
	'Others'	6·82	3·34		
Block Design	Brahmins	14·89	8·18	3·23	1·34
	Rajputs	11·66	8·93		
	Brahmins	14·89	8·18	6·71	2·41 *
	'Others'	8·18	5·51		
	Rajputs	11·66	8·93	3·48	1·22
	'Others'	8·18	5·51		
All tests combined	Brahmins	156·08	46·37	5·76	0·38
	Rajputs	161·84	57·58		
	Brahmins	156·08	46·37	25·35	1·45
	'Others'	130·73	46·14		
	Rajputs	161·84	57·58	31·11	1·65
	'Others'	130·73	46·14		

* Significant at 5% level of probability.

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Two additional factors, namely, education and social status should be considered before undertaking in drawing any conclusion from the above comparisons.

Brahmins and Rajputs are practically enjoying the same socio-economic status. Intercast marriages are in vogue among them. Regarding these two groups, relations to social situations are practically the same. 'Others' comprising Koltas, etc., belong to lower caste. They are born and brought up in different socio-economic surroundings.

However, the groups are homogeneous as to race and language. An attempt to control the environmental factors has been made in that our investigation represents results of the comparison of boys belonging to different groups, inhabiting the rural areas and reading in the same school system. The groups may not represent the general population, for they are too small to call for such a generalization, but they are comparable among themselves.

In view of the above facts we cannot attribute much importance to the significant disparity between Brahmins and 'others' in the Passalong and Block Design tests. The truth about using different Performance tests is surely that they are used not to measure diverse functions but to assess a common general function or concrete intelligence which is the resultant of a general factor g and a group factor F. But to get rid of specific factor s unique in each test, variety of tests are used. As there is no difference in combined score comparisons, so it is evident that the above disparity may be due to s or some other factors and not to g and F.

So the observed difference suggests that Brahmins are not superior to 'others' in concrete intelligence but they may do well in certain practical situations.

It appears from the standard deviations in Table I that the groups are nearly equally variable in each test. It is also evident that the standard deviations of all the tests in all the groups are rather high, when the magnitude of the corresponding mean values are taken into consideration. Thus it is not possible to assign high degree of reliability on the mean values of the tests. Besides the number of individuals tested in each group is too small to draw any definite conclusion. It is also observed from Table II that Rajputs are more variable than other two groups and Brahmins and 'others' are nearly equally variable in the combined test. The coefficients of variation are found to be generally very high. This value is comparatively higher in the Block Design test score. In mental testing, however, much importance should not be attached to the coefficients of variation (10).

Summary

(1) It is evident from the correlations that the Passalong, Dearborn, Cube Construction and Block Design tests are nearly equally representative of the same general function and the Dearborn is the most representative of all the tests. The tests are valid for the groups concerned for the coefficient of correlation of each test with the combined score ranges between 0·74 and 0·81.

(2) The difference is significant at 5% level of probability between Brahmins and 'others' in the Passalong and Dearborn tests for the value of t is 2·41 in both cases. As the difference in combined scores comparison is not statistically significant, so this difference is not due to concrete intelligence but to specific and other factors and it suggests that Brahmins may do well in certain concrete operations.

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(3) There is no significant difference between Brahmins and Rajputs, and Rajputs and 'others' in any of the tests and between Brahmins and 'others' in the Dearborn and Cube Construction tests.

(4) The combined score comparisons show that the value of t between Brahmins and Rajputs is 0·38, between Brahmins and 'others' 1·48 and between Rajputs and 'others' 1·65 and it is evident from these values that the differences among the three groups are not significant, that is, there is no difference in concrete intelligence among them.

No definite conclusion can be drawn from the above findings for the number of individuals tested in each group is too small.

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Appendix A

Individual Scores of a sample of nineteen boys on a number of Performance Tests

Race: Jaunsaries Caste: Brahmins

No.	Age in 1947	Passalong	Dearborn	Cube Construction	Black Design
1	16	25	14	8	22
2	8	11	11	6	2
3	15	35	8	7	15
4	11	13	9	8	4
5	10	15	16	9	11
6	16	31	22	10	28
7	16	20	15	6	24
8	12	13	8	9	17
9	9	22	14	6	8
10	12	29	22	10	21
11	12	17	13	7	20
12	9	18	14	7	21
13	10	30	18	5	11
14	12	23	14	2	24
15	11	23	17	9	24
16	9	15	0	3	2
17	9	17	11	6	8
18	9	25	14	8	13
19	12	21	9	3	8

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Appendix B

Individual Scores of a sample of forty-one boys on a number of Performance Tests

Race: Jaunsaries Caste: Rajputs

No.	Age in 1947	Passalong	Dearborn	Cube Construction	Block Design
1	12	13	12	8	14
2	11	11	7	5	2
3	16	15	24	11	21
4	13	19	17	13	11
5	13	20	14	7	4
6	14	20	14	7	4
7	9	22	21	8	4
8	16	15	12	6	2
9	15	19	14	15	28
10	10	10	16	7	4
11	9	14	12	3	4
12	8	19	12	6	8
13	10	20	15	6	13
14	12	24	19	15	28
15	10	26	17	3	4
16	12	21	15	9	13
17	10	16	13	7	28
18	11	15	12	2	4
19	10	14	16	6	11
20	9	29	22	14	28
21	10	24	13	3	6
22	11	15	7	13	8
23	10	30	21	8	17
24	15	30	26	19	28
25	11	19	24	10	13
26	11	19	23	8	4
27	10	25	24	11	13
28	12	16	8	0	4
29	12	12	8	6	0
30	9	25	14	9	8
31	10	30	19	10	8
32	11	0	0	8	0
33	13	20	16	7	28
34	10	22	28	10	16
35	10	33	17	9	28
36	9	23	19	11	14
37	12	19	20	13	11
38	11	8	10	6	4
39	14	25	18	11	13
40	10	20	9	6	6
41	13	28	21	10	14

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APPENDIX C

Individual Scores of a sample of eleven boys on a number of Performance Tests

Race: Jaunsaries Caste: Koltas, etc.

No.	Caste	Age in 1947	Passalong	Dearborn	Cube Construction	Block Design
1	Kolta	12	23	6	6	4
2	,,	10	20	18	5	13
3	Bajgi	12	18	12	8	2
4	Sunar	9	13	24	7	17
5	Baroi	12	19	20	8	6
6	Dewar	10	10	20	10	14
7	Sunar	13	20	17	4	4
8	Nai	9	19	18	12	13
9	Sunar	10	10	10	0	0
10	Nai	10	14	11	10	8
11	Kolta	14	0	0	5	9

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REVIEW OF BOOKS

BONDO HIGHLANDER. By Verrier Elwin. Oxford University Press, 1950. Pp. xix+219. Price Rs.30.

The Bondos are a numerically small tribe of a few thousand persons, living in the hilly country in the Jeypore zemindary area, now in the Koraput district of Orissa. The author has described the difficulties of access to the Bondo area he experienced and also the difficulties of working among Bondos. The author has also stated in the introduction that he has left out common features of material culture which he will describe in his work on Konds.

The monograph is mainly a detailed description of Bondo social structure, marriage customs, love-life and certain religious festivals. The author states he has tried 'to discover how the Bondo feels and thinks, how he reacts to the great crises of life'.

So long as Elwin confines himself to description of observed events of facts, his report is excellent. The illustrations as usual with him are extremely good. Also he has given details of love-life which other anthropologists generally have great difficulty to collect or are not able to obtain at all. When, however, he tries to indicate how the data fits in with the life of Bondo men and women, the author indulges in what may mildly be described as fanciful speculation. He overlooks obvious contradictions in his explanation. Thus to explain certain social customs he states that the boys stand in awe of the girls but elsewhere mentions that in the evening parties 'the boys spat in the faces of the girls, smeared their faces and breasts with ashes from the fire, slapped them, thumped them with the clenched fist'.

The discussion of social structure is valuable although the significance of certain facts noted cannot be checked statistically as the author has not printed the whole of the actual data he has collected and used, and has given only a few genealogies. The kinship terms are also incomplete and it is not mentioned how they were collected. This is surprising as Elwin uses the kinship data in his discussion of Dual Organization.

The author states that he will follow up this work with other monographs on Orissa tribes. It is hoped that he will remove these serious blemishes in the future publications. The author has done valuable work in collecting data in difficult circumstances about this tribe who seem to have preserved certain archaic features in their social structure.

K. P. CHATTOPADHAY

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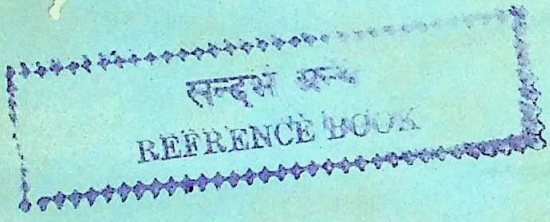

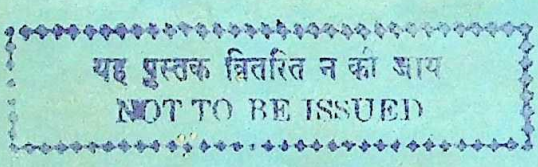

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